ISASC

EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

M.A. CRAWFORTH, EDITOR INAUGURAL ISSUE SPRING, 1978

EDITOR'S COMMENT

In this first issue of EQUILIBRIUM I have tried to indicate the range of articles, both in size and content, which I believe will make our magazine interesting and useful as a permanent reference. As a consequence it is larger than you can expect in the future. My target for forthcoming issues will be sixteen pages. The format is one to which all members can and, I hope, will contribute, both voluntarily and by invitation. Every contributor will be duly credited with authorship.

The success of this new venture depends on all members taking part. Perhaps one of the faults of the old system was the difficulty less experienced collectors had in thinking of sufficient material to fill a complete newsletter, and the concern other collectors had about joining because (they say) they have no expert knowledge to impart, only a liking for scales and the desire to learn about them. Under the new arrangement they will be able to make quite a modest contribution; for example, every member can describe one or two scales in his collection, send in queries, comment on previous articles, search his local museum and library and report his findings about scales and weights, quote historical references, etc. It is by the gradual accumulation of such evidence, however small, that we all learn.

Another disadvantage of the old newsletter system was the lack of two-way communication—no way of asking questions, making comments or supplying answers. EQUILIBRIUM will be an open forum and I hope there will be a rich correspondence column with plenty of discussion and argument.

Finally, a comment about the format, which has a wide margin for those who wish to ring bind or file their magazine. The pages will be numbered consecutively following-on in successive issues. Similarly, all Notes & Queries and letters will be numbered consecutively throughout. A reference to a particular page will be Equilibrium p71 or, in brief, EQM p71; to a particular question or comment, Notes & Queries 71, or NQ 71; and to a specific letter, Letter 71 or L 71. Thus, the gradually increasing pile of magazines will be useable like a book, providing rapid reference—and an index will be supplied yearly.

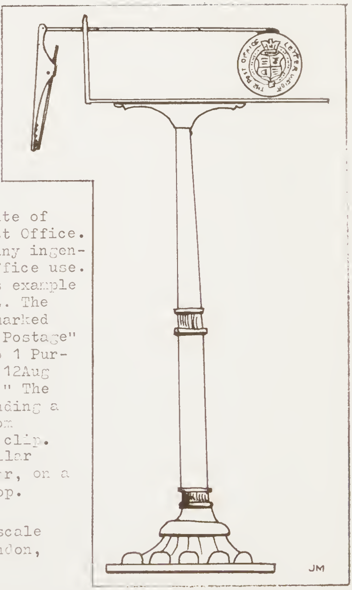
We have been forging friendships and exchanging data for a year now, and the time has come to pass on more formally the immense amount of information held by our members, and to show the skeptics that collecting is not just possessiveness but also involves intellectual enquiry and the pursuit of historical verity.

I will try not to be too solemn in this new venture, and I hope you will enjoy participating. WELCOME ABOARD!

Michael Crawforth

EARLIEST U.K. POSTAL ?

BY J. MUSSELL



Prior to 1840 in England letter deliveries were charged on the distance carried: a single sheet letter costing 2 pence for up to 8 miles, 4 pence from 9 to 15 m and so on. Two sheets were twice this rate. With the introduction in 1840, of Rowland Hill's revolutionary Penny Postage the rate became 1 penny per half oz anywhere in the British Isles - thus was born the real need for a simple scale to determine the rate of postage without a visit to the Post Office. The scale illustrated is one of many ingenious ideas adapted for home and office use. Based on the bismar priciple, this example is for weighing letters up to 4 oz. The fixed coin-type counterweight is marked "For Rowland Hill's Plan of Penny Postage" "Silvester & Co 27 Strand. Reg. No 1 Pursuant to 2 Vic Ch 17 for H. Hooper 12Aug 1839"on one side and on the other " The Post Office Letter Weight" surrounding a Royal Coat of Arms. It is made from bronze with a spring steel letter clip. The 8 inch pillar is brass. A similar balance was made without the pillar, on a flat base to be fixed to a desk top.

John Mussell is custodian of the scale collection owned by Harmers of London, stamp auctioneers.

Richard Silvester & Co in trade directories 1827-1843 as seal & copper plate engravers: See OLD ADVERTS. - Ed.

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PRECISION BALANCES

BY M.JOYCE

Practical scientific investigations brought about the need for greater accuracy in weighing small amounts of materials. Fig 1 shows the spectrum of weighing accuracy with balances in common use for various purposes positioned along it. The classification of precision balances runs from an accuracy of one part in 50,000 right up to the natural limit at about one part in 10^8.

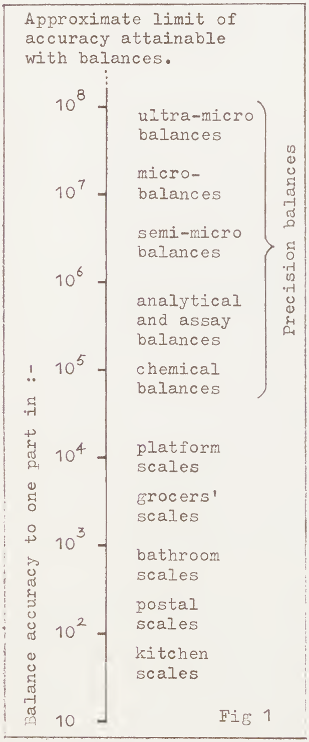


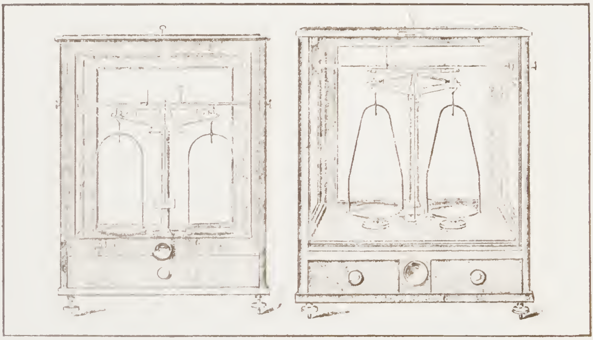
Fig 1

If greater accuracy is required for weighing than is obtainable from simple beam balances, several features have to be improved, notably the construction of the knife edges and bearings, and the design and construction of the beam.

Knife edges and bearings were originally made of steel but this century have generally been made from agate or corundum. The knife edge bears on a flat plane which is worked optically flat (to within ± 0.00008cm). The best agate, which is naturally occuring mineral (often coming from Brazil) has a hardness of about 6 on Moh's scale (which gives a diamond hardness of 10) but sometimes lacks homogeneity, whereas corundum, which is produced artificially, is homogenous and has a hardness on Moh's scale of 9.5.

Endurance tests which were carried out on two similar balances, one fitted with agate knife edges and planes, the second with agate knife edges and corundum planes, showed constant sensitivity in the first until about 20,000 weighings and then fairly rapid deterioration in performance, whilst the second one held constant for 50,000 weighings and then deteriorated at a much slower rate. The deterioration is brought about by radiusing of the knife edges and grooving of the planes. Wear of this kind can be reduced by taking the knife edges and planes out of contact with each other except when an actual weighing is taking place.

E.Brauer studied this procedure and recommended that, on weighing, (a) the end planes are first lowered onto their knife edges followed by (b) the centre knife edge being lowered into contact with its plane. The sequence on arrestment is for (c) the end planes to be raised and then (d) the centre knife edge to be raised. This sequence ensures that on release the end planes are always deposited in the same contact position with their associated knife edges, which is not likely to happen if the beam is already in motion on its central fulcrum when the end planes are lowered. However, a problem arises because any release/arrestment mechanism which uses simple reciprocating action cannot do any sequence other than (a)→(b)→(d)→(c). Rather than escalate the cost of manufacture by incorporating complex mechanisms to satisfy Brauer's sequence, makers have devised composite arrestments for the beam and supplemented them with pan stops so that the ideal sequence of release/arrestment can be modified without predjudicing accuracy of increasing knife edge and plane wear. The sequence (b)→(a)→(c)→(d) can be quite satisfactory, provided the action of beam arrestment and pan stops is carefully coordinated to prevent bouncing.



Strains are also set up in the knife edges by the adjusting screws which are used to obtain accurate alignment, and these frequently cause slow changes in the position of the knife edge, which may continue for many years. Agate has the disadvantage of being hygroscopic and experiments by H.Rossi at John Hopkins University have indicated that a moisture film separates the knife edge from the bearing. These experiments offered the first explanation of why the friction of a knife edge on a plane obeys the same laws as the friction of liquids and provided a theoretical proof for the rate of damping of oscillation of successive swings of a balance pointer.

In order to be able to detect very small variations in weight the balance needs a beam which is very strong, yet light. In addition it should have a high modulus of elasticity, a very low coefficient of thermal expansion, good thermal conductivity, a high specific heat, and it is essential for it to be non-magnetic. In practice a considerable compromise has to be sought. Taking into consideration the density and modulus of elasticity indicates that an aluminium beam should be more rigid than a brass one of the same physical dimensions. The undesirably high coefficient of expansion of aluminium and its alloys is offset to a certain extent by the high specific heat. Brass and other alloys, on the other hand, will have a smaller surface area to absorb heat, a lower coefficient of expansion and a higher thermal conductivity. They do, therefor, come into a condition of thermal equilibrium more quickly than beams made of aluminium alloy. Another important consideration is that the material must maintain its dimensions with great accuracy over a period of years. Beams constructed of aluminium alloys and also of copper alloys in the U.S.National Bureau Of Standards have shown changes in the ratio of the arm lengths from one to four parts per million each year and in some cases continuing for more than 15 years.

The material finally selected by the German Normal-Eichungs-Kommission is a type of magnalium with 86% Al, 13% Mg and impurities of silicon, iron and copper. A. .Corwin however, recommends a copper-beryllium alloy with 95% Cu, 4% Be and 1% nickel. Different manufacturers have used brasses, bronzes and various alloys of aluminium from time to time.

Beam lengths in the 19th century were generally longer than present day balances in order to obtain greater sensitivity, but the period of oscillation was also long consequently weighing was a slow process. Shortening the beam reduced the time taken for the pointer to swing from side to side but reduced the sensitivity of the balance unless particular care was taken with the accuracy of construction. Analytical balances of the 1950s typically had beam lengths (measured between the two outer knife edges) of between 1[illegible] and 20 cms whilst some chemical balances had beams of 9 to 10 cms. Assay balances come as short beamed with beams of 10 to 15 cms. Thickness of the beams also varies considerably and was, of course, a design variable which depended on the material used in the construction. Some examples are given in Fig. 2:-

Maker	Type	Date	Beam length (cm)	Beam thickness (cm)	Thickness/Length
Brass Beams					
Oertling	Assay	1903	20.3	0.16	0.008
Oertling	Analytical	1933	15.0	0.24	0.016
Sauter	Chemical	c1935	23.0	0.38	0.017
Stanton	Analytical	c1950	12.7	0.23	0.018
Kuhlmann	Analytical	c1930	13.0	0.40	0.031
Aluminium Beams					
Sartorius	Semi-micro	c1950	14.0	0.31	0.022
George & Becker	Analytical	c1955	14.0	0.38	0.027
Becker	Analytical	c1940	15.9	0.46	0.029
Nickel/Chromium Beams					
Oertling	Micro	c1950	7.5	0.13	0.017
Bunge	Chemical	c1935	13.3	0.50	0.038

The pointer indicates the extent of the beam's deviation from its rest position so that angular movement of the pointer needs to be measured to a high degree of accuracy. This can be done by designing a long, light pointer whose tip moves in front of a graduated scale, which is the method used for chemical and some analytical balances. When a greater degree of accuracy is needed the end of the pointer carries a clear graticule having a fine scale photographically reproduced on it. This scale may only be 2.5mm long and be divided into 40 parts each 0.06mm apart and representing a weight difference of only 0.01 mg. An optical system is used to project an image of the scale onto a ground glass screen and this acts as an optical lever and is equivalent to employing a pointer of five to ten times its actual length. A metal pointer of this length would be useless, both because of the size of the balance case required and the lack of stiffness causing bending of the pointer as it moved away from the vertical.

The features described in this short article and their price in a catalogue of 1956 shows that chemical balances in cases averaged £15, analytical balances about £35 and if they offered projection reading and had automatic weight loading onto the pan, they cost approx. £110. Microchemical balances at the top end of the price range averaged £200. In those days bathroom scales cost £5.11.9 and good kitchen scales were £2.14.0.

In the absence of written specification, a collector may be able to classify a laboratory balance by checking which features it possesses in the following table, Fig 3:-

ASSAY	MICRO	ANALYTICAL	CHEMICAL	
5	20	200	250	Typical capacity gm.
0.01	0.001	0.1	2.0	Typical accuracy mg.
yes	yes	yes	some	Glass case
some	yes	some	no	Side doors in case
yes	yes	yes	no	Pan stops
some	yes	some	no	Projection reading
some	some	some	no	Internal weights
some	yes	yes	some	Rider scale marks on beam.
no	no	some	some	Chaindial
yes	yes	some	no	Adjusting screws for knife edges.
yes	yes	some	no	Relief of outer knife edges.
yes	yes	some	no	Glass base in case

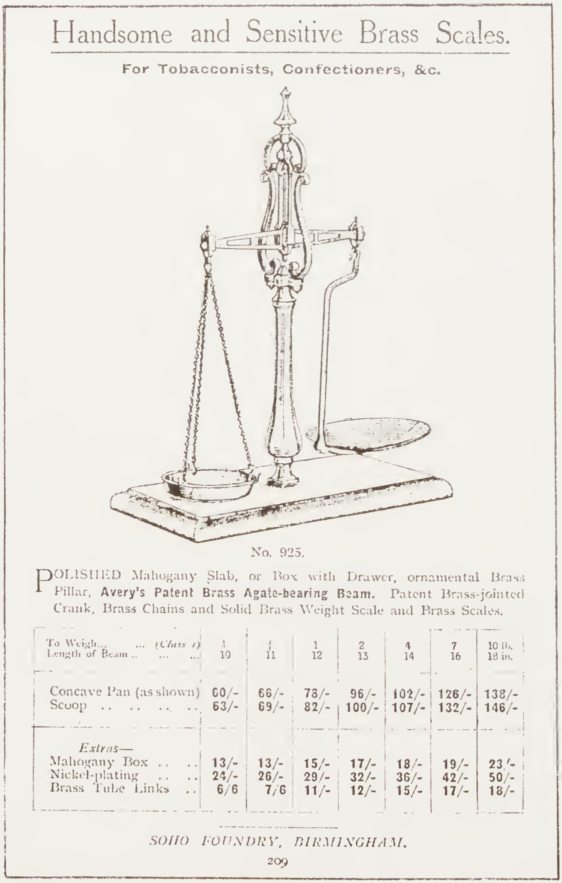
Michael Joyce specializes in collecting precision balances of which he has a representative selection of British examples from 1890 to 1960.

Griffin & George Ltd. Chemical Lab. Apparatus catalogue 1956
Brauer. E. Balance Construction (English trans. H.C.Walters) 1909
Encyclopedia Britannica Vol 2 1060 1969
Metcalf. T.J. Weighing Machines Vol 1. Griffin 1969.

BEAMS, REPAIRS & INSPECTORS

BY J.LOUND

A beamscale - 'An equal armed weighing instrument with the pans below the beam'... An official definition, but to my mind as an ex repairer and service adjuster, an under rated description of the most sensitive trade scales ever made, and which were produced for our Nation of Shopkeepers in hundreds of thousands over the years. These were made in many metals, but a large proportion were in brass for shop use in every shape, size and capacity and they ranged from the austere to highly ornate, dependant upon the depth of your pocket or how well your business was doing.



Handsome and Sensitive Brass Scales.

For Tobacconists, Confectioners, &c.

No. 925.

POLISHED Mahogany Slab, or Box with Drawer, ornamental Brass Pillar, **Avery's Patent Brass Agate-bearing Beam.** Patent Brass-jointed Crank, Brass Chains and Solid Brass Weight Scale and Brass Scales.

To Weigh... ... (*Class I*) Length of Beam	¼ 10	½ 11	1 12	2 13	4 14	7 16	10 lb. 18 in.
Concave Pan (as shown)	60/-	66/-	78/-	96/-	102/-	126/-	138/-
Scoop	63/-	69/-	82/-	100/-	107/-	132/-	146/-
Extras—							
Mahogany Box	13/-	13/-	15/-	17/-	18/-	19/-	23/-
Nickel-plating	24/-	26/-	29/-	32/-	36/-	42/-	50/-
Brass Tube Links ..	6/6	7/6	11/-	12/-	15/-	17/-	18/-

SOHO FOUNDRY, BIRMINGHAM.

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A page from the 1906 catalogue of W & T Avery Ltd

Prior to the last war, grocers relied greatly on the beam for their trading, all sugar, dried fruit, peas and lentils, bacon, butter, lard, tobacco, confectionary and coffee - and a host of other commodities were all weighed on beams of various types with sometimes as many as five or six in a medium sized grocery store. Even with the introduction of the new semi self indicating automatic scale for computing the price of bacon and cheese, many shopkeepers felt that these were'new fangled'and were quick to defend accurate weighing on their beams.

Scale repairers too had an affection for them, although some of the old hands may have been reluctant to admit an affection for anything apart from their beer! So many of these scales were in use that it was a never ending task seeing to the servicing and repairing up to the high standards required by the Weights and Measures Inspectors. Somehow in those days inspectors seemed far more formidable than today - stern men who dealt almost solely with scales and who knew their job - which is not to say that present day inspectors do not, but no-one had heard of the Consumer's Protection Act then and modern inspectors have a multitude of other tasks on their shoulders. I've known some of the older inspectors who, on entering a retail shop on their annual or bi-annual visit to test scales and check goods, have almost had the staff standing to attention and the proprieter in a state of nervous tension. The reason of course was that if his scales were showing errors outside the permitted tolerances they would be rejected and this meant a repair bill and maybe a court appearance for having unjust scales.

Six knife-edges, six agate bearings and six friction steels*or three knives and bearings for a continuous knife edge beam - the most sensitive of them all.... that was the sum total of all new parts fitted for a full repair and restamping. I can well imagine the views of some of the younger service adjusters of today's electronic digital readout computer scales who have never repaired a beam... what was there to repair ?

Well, the prerequisite for each centre or knife was that it be fitted rigidly into the beam, projecting at each side on a horizontal plane and at right angles to its axis. They were then polished and hardened. Old agates and frictions were then removed from the agate boxes and new ones fitted. The play between knife and friction was kept to a minimum, although free movement was essential and the gauge*of the beam had to be perfect. Face* or top weight of the beam had to be just right otherwise it would fail the sensitivity test. A 2 lb beam scale should, after adjustments, have been able to turn to 1½ grains with the full load in position, and on removing the 1½ grains the beam should return to balance. Cleaning and buffing came next, and should, as in the case of higher capacities, your beam have a cast iron foot and harp top, these would have to be stripped, repainted and decorated with gold leaf powder and goldsize.

All was ready now for the weekly visit to our workshop of the local Weights and Measures inspector. We would have maybe a dozen or more beams lined up as well as other types of scales, and all would be subjected to close scrutiny before testing. Checks would be made to ensure all knife edges and frictions were pot hard and that there were no obvious faults. If anything was seen to be wrong before testing then it could be withdrawn and no charge made - a'visible reject! but if after testing a fault was found it would be regitered as a reject and a charge made. If all went right however, and after beams had been reversed, ends changed round, gallows* turned and with test weights applied, the scale was within the correct verification tolerances, out would come the inspector's little leather pouch containing his official stamps, and the month, year and district number would be stamped on to the newly cleaned lead plug. The charge for this, I believe, was one shilling for a 2 lb beam (c1939)

The tolerance one worked to then seems minute compared with today - sensitivity allowance was 1½ grains on a 2 lb beam, 6 grains on a 10 lb and 16 grains on a 20 lb, all fully loaded. Compare that with todays 10 lb digital scale where a tolerance of one interval 1/8th oz (about 55 gn) is acceptable, and a 1/4 oz on a 20 lb capacity !

Sometimes a new inspector would appear on the scene, and I recall one young chap who, terribly unsure of himself, took the best part of two hours to test one beam, with the adjuster who had repaired it muttering darkly in the background that he could repair a scale faster than this so-and-so could test one. On theother hand, some of the old 'Scalies', particularly those who had been makers before going on to be general service adjusters, were extremely skilled in their trade. One foreman who I worked under would stroll in to work half an hour late, carefully spread out his newspaper and study the racing page for a while, the pick up two beam scale repairs which he proceeded to do simultaneously. These would be finished and ready for stamping by 11.30 when, greasy old trilby on the back of his head, he would amble down to the pub for his pint. In all probability he would meet the foreman from one of our local competitors in the bar who had more than likely had a similar morning. I could imagine the conversation going something like - "Anything unusual for stamping today, Bill?" and the growled reply "Naw, only a few beams now lets have a look for those winners."

* * * * * * * * * * * * * * * * * * *

* Face - the horizontal alignment of the knife edges.
Frictions - colloquial name for Anti-friction plates, hard steel plates at the end of bearings, designed to take the end thrust of the knife edges.
Gallows - the shears, or forked piece which suspends the beam and contains the main fulcrum bearings.
Gauge - the distance between the knife edges.

John Lound served a seven year apprenticeship as a scalemaker and has adjusted and repaired scales since 1938. He is now Assistant Sales and Service Manager for a firm of scale repairers, and a new member of ISASC.

N.B. Things haven't changed very much in two centuries. - A reciept in the Ambrose Heal collection of trade cards in the British Museum includes the following ;

E^{h}. & Jn^{o}. SANGSTER. 11 Dec^{r}. 1769

Scale Makers to his Majesty
At the Kings Arms, Butcher Row, Temple Barr.

To Repairing, Painting - s d
& Pollishing a larg Beam 10 : 6

Editor.

PROFILE 1. - R.W. WINFIELD

BY H.GREEN

The firm was founded in 1829 by Robert Walter Winfield, on a nine acre site on the Baskerville Estate, Birmingham, and now that is some 148 years ago. By 1887, some 58 years later, their factory buildings covered 4½ of those acres, and their principal industry was brass making, a particular speciality being ornate brass bedsteads, for which they became famous. They also had a branch which created decorative cast iron work. Quite apart from these two principal industries, they had a considerable number of sidelines, and amongst these were such items as music stands, hat and coat stands, newspaper racks, hall lamps, electric and gas fittings, both brass and wrought iron. Turning to even smaller items included in their repertoire, there were curtain rings, letter clips and letter balances.

The Cambridge St. Works of R.W.Winfield

Their elaborate decorative metalware was greatly admired by the Victorians, and items such as their four hundred guinea brass bed, and their floral child's brass cot resulted in the award of medals at the Great Exhibition of 1851, in 1862 and a gold medal at the Paris Exhibition of 1867. They were especially proud of their gold lacquer which was exceptionally thick and lustrous, and which gave their brass products "an elegant and tasteful effect".

Brass cot displayed at the Great Exhibition 1851.

Unfortunately, it is not known whether or not the Company is still in existence, or whether it was taken over by another firm some years ago.* Information obtained from the Birmingham library last year threw no new light on the matter.

If it were possible to obtain a copy of one of their catalogues, no doubt a lot of queries would be solved, but at present only one type of spring letter balance has been found by collectors. This particular type of balance is upright in design,

*(The last trade directory entry traced was for R.W.Winfield & Son 1860)

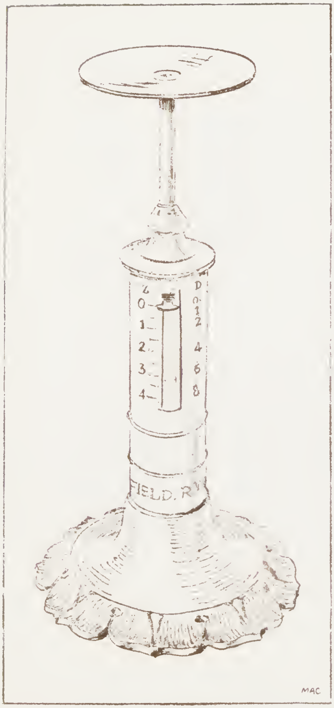


Fig 1.

'Candlestick' letter balance.
R.W.Winfield.
Postage rates were current between 1840 & 1865

consisting of a central cylinder which houses the spring in the centre of which is attached a short brass rod, the bottom of which is fixed to the top of the spring. At the top of the rod there is a small circular flat plate on which to put the letter. In the centre of the cylinder there is a vertical slot on either side of which there is a graduated scale. The left side has markings from ½oz to 4oz in ½oz divisions. On the right side are postal rates from 1 penny to 8 pence so placed as to coincide with the appropriate weight of the letter. The tell tale double-sided little pointer, which is attached to the rod, indicates the weight and cost of postage at the same time.

The base of the brass cylinder is fitted into a brass or cast iron ornamental base, and to complete the design, there is a thin brass band embossed with the following inscription "No.170 January 13th 1840. R.W.Winfield, Birmingham" Other examples of this candlestick style balance by Winfields all have the same inscription (regardless of the base) so it probably refers to a catalogue or design registration and not to the serial number and date of manufacture.

There are quite a number of different designs for the base to be found. Some of them resemble rough rocks, elaborate leaf patterns or have an ornamental fluted design. Others exist mounted on a rectangular marble base. The latter of course, were more costly to buy, as they had a much more artistic finish. Some of the later models have only the name of'R.W.Winfield, Birmingham' on the brass band.

It is little known that Winfields also made sovereign balances. One design was of the common 'rocker' type Fig 2. (see also Sheppard and Musham No 269.), while the other was more elaborate, with two plates above the beam stabilised by hanging weights below. Weights for a sovereign and half-sovereign were provided, both marked R.W.Winfield 1842. Fig 3.

It is doubtful whether one will be able to find any reference to this firm in the trade directories under the heading "scale manufacturers" as scales were a complete side-line for this large industrial establishment which made "a thousand-and-one useful items which ornament and embellish our modern mansions"

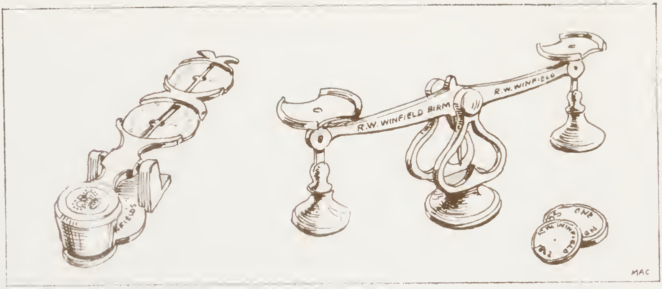


Fig 2.

Fig 3.

Sovereign balances by R.W.Winfield c1842.

Harry Green is not a member of ISASC, but he kindly agreed to write this article for Equilibrium. He has collected letter scales for many years and has a very good collection. He has made a point of collecting documentary evidence to do with manufacturers.

AMERICAN COUNTERFEIT COIN DETECTORS

BY A.G.MALLIS

The earliest American coin scale known to us is one that was made in England about 1740, and sent to America and sold by an R.Billings of Cornhill in Boston. Records in the American Antiquarian Society in Worcester, Massachusetts, indicate that Billings opened a store on Cornhill Street in Boston in 1735. The boxed scale contains an equal arm balance with suspended pans, plus pennyweights and grain weights. Of special interest is the label inside the lid which gives the value of English and foreign gold and silver coins in terms of Colonial paper money.(a similar label is illustrated by Sheppard & Musham No 14). During this period of time, England did not supply sufficient hard money to the colonies, with the result that Massachusetts issued paper money that was not backed by gold or silver. The result was rampant inflation that finally saw a gold guinea worth ten pounds and ten shillings in paper. This monetary policy of England probably did more to bring on the American revolution than all the other causes put together.

Another boxed scale of circa 1845 has an equal arm balance, two suspended pans, plus a set of penny weights and grain weights. The label reads in part "By Act of Congress, March 3, 1843, English gold is legal tender at 94 cents 6 mils per dwt. French gold at 92 cents 9 mils per dwt" The label also indicates the value of foreign coins which were legal tender in the United States until 1857, with their then current value.

Counterfeit coin detectors came into being in England in the early 19th century and by 1850 had reached a high state of development. In the United States, the first such device was one patented by H.G.Robinson on July 12th, 1853, followed by G.B.Smith on September 6th, 1853. A counterfeit coin detector differs from a coin scale in that all counterfeit detectors must be able to perform three functions :

1. Weigh the coin.
2. Gage the thickness of the coin.
3. Gage the diameter of the coin.

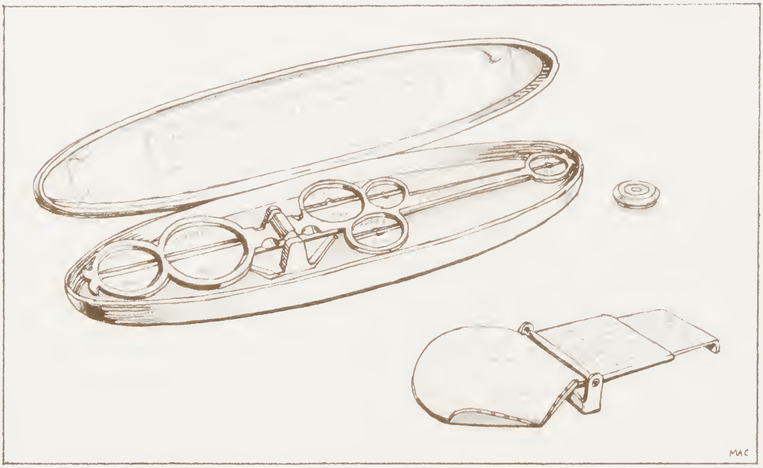


Fig 1. Allender's scale 1855. Fig 2. Maranville's scale 1857.

In as much as counterfeiting coins was done for monetary gain, the counterfeited piece was made with base metal. All base metals, except lead, have a lighter specific gravity than silver, and all base metals are heavier than gold. Thus, for a spurious coin to weigh properly its thickness or diameter, or both has to be greater than a genuine coin. If a spurious coin has the proper thickness and diameter, then its weight will be light.

The golden age of counterfeit coin detectors in the United States was between 1853 and 1885, when twenty-seven of the thirty-three known patents were granted. The demise of the counterfeit coin detector can be attributed to two causes; one, the education of the average American and two, to the vigourous pursuit of the counterfeiters by the United States Secret Service. Six of the detectors are described below :-

FIG 1. Counterfeit coin detector by J.Allender, patented in Nov.27th, 1855, shown in its original box of issue. This model has a pan for the 3 dollar gold piece. The counterweight was placed on the one dollar receptacle when weighing the ten and twenty dollar

coins. The diameter of the pans determined the size of the coin while the slot in each pan gaged the coin thickness. Allender's first design, marked 'patent pending', did not include a pan for the three dollar gold piece, but was otherwise identical.

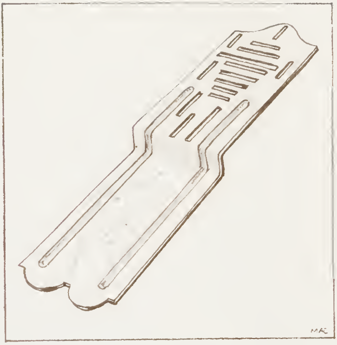
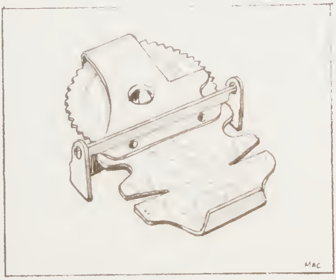


Fig 4 Thompson's scale 1877

FIG 2. Patented by H.Maranville, Jan 13th, 1857. A simple detector to weigh U.S. gold and silver coins, plus foreign gold and silver coins (English and French). The slide moved in or out to a predetermined mark to weigh the coins. Concentric circles on the plate gaged the diameter and a stepped lip at the edge of the plate determined the thickness.



Maranville's scale 1878 Fig 3.

FIG 3. H.Maranville patent of April 30th, 1878. This was the third type of counterfeit coin detector patented by Maranville and undoubtedly one of the most ingenious. The plate held the coin against the lip, while the movable counterbalance wheel was turned to the premarked setting for each coin to be weighed. The two vee slots were used to determine coin thickness, by pushing the coin into the vee as far as it would go and then reading off against the marks.

Fig 5 Hoag's patent 1879

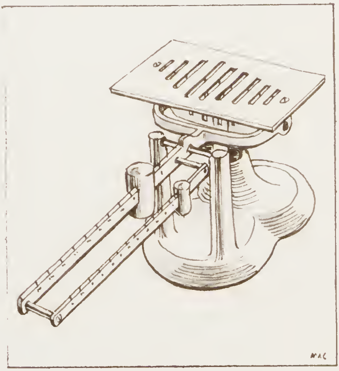


FIG 4. A bent 2" wide plate with slots to hold and gage various gold and silver coins, patented by J.A.Thompson on Feb 27th, 1877. A very elementary type of detector which rocks on the bend which forms the pivot. The original price was 1 dollar.

FIG 5. A sophisticated scale having a slotted platform at one end with two sliding weights, each moving on its own beam. Patented by G.Hoag on June 3rd, 1879. The slots in the platform gage diameter and thickness of the coins. Vertical slots below the platform hold the coin in place for weighing. The large weight was for silver, and the small one for gold coins. The base was cast iron.

FIG 6. Counterfeit coin detector for U.S. gold and silver coins patented by J.T.McNally and W.H.Harrison on Feb 28th, 1882. The coins were held and gaged in the same way as No 5, above. This model was made by Fairbanks & Co. but others are known marked Fairbanks Infallible Scale Co, and also with just the name'J.T.McNally inventor'. According to the original box, W.H.Harrison was the Manager of the Fairbanks Infallible Scale Co.

George Mallis is a consulting numismatist and a member of several numismatic societies. He is also an author, appraiser and lecturer on the subject of coins, and in 1962 was a member of the United States Assay Commission.

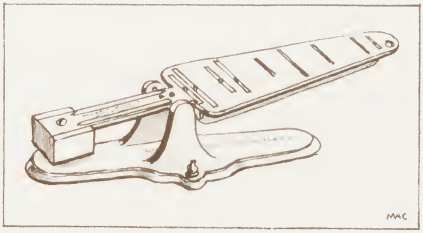


Fig 6.
McNally & Harrison's 1882.

References: Money Scales and Weights by Sheppard & Musham. Spink 1975
United States Patent Office records.

CONTEMPORARY COMMENT

"...I observed in the morning, that the King playing at tennis had a steele-yarde carried to him; and I was told it was to weigh him after he had done playing; and at noon Mr. Ashburnham told me that it is only the King's curiosity, which he usually hath of weighing himself before and after his play, to see how much he loses in weight by playing; and this day he lost 4½ lbs."

From Samuel Pepys' diary, 1667 (about Charles II).

"York, July 20th. Last Thursday, at Seamer fair, near Scarborough, as a Shoemaker was weighing a guinea, he had three pair of shoes stolen from his stall."

From the London Chronicle, July 20-22, 1773.

NOTES & QUERIES

NQ 1. SCALE BY EDWARD PHILLIPS. query from G.L.Mindel

" I have a scale in a wooden box signed Edw^{d}. Phillips .... Would you know of any way of dating this scale maker's work ?"

Reply: from the Editor

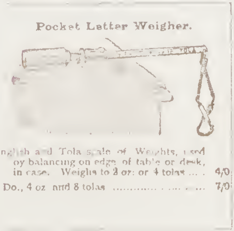
Edward Phillips was a member of the Blacksmith's Livery Company (Guild) of London. He was bound as an apprentice to William Brind in 1755 and made a freeman in 1763, Phillips later took on an apprentice Robert Allison who became a freeman in 1781 on the testimony of his master Edward Phillips. Thus your scale was probably made between 1763 and 1781.

NQ 2. SCALE BY EDWARD GREAVES. query from B.Brass

"On your sheet on Bismars No.7 you illustrate a letter balance by Rogers & Sons with two little feet (pivots). You also mention a variety with three pivots by John Greaves & Son. Well I have just purchased one with four feet, curiously it is by Edward Greaves....I would certainly be grateful to have your comments."

Reply: from the Editor

All these little bismars with multi pivots are rare, and I have not previously heard of one with four pivots. John Greaves & Son, South St. Sheffield were listed in trade directories as 'Brass founders and steel converters, manufacturers of steel, saws, files, edge and joiner's tools etc' from 1839 to 1845. Edward Greaves was listed at the same address in 1849, but in 1872 and 76 he was at 76 Milton St. From this it would appear that Edward was the son of John Greaves.


Pocket Letter Weigher.

English and Tola scale of Weights, used by balancing on edge of table or desk, in case. Weighs to 2 oz. or 4 tolas 4/0
Do., 4 oz and 8 tolas 7/0

In Newsletter No.5 another type of bismar made by Edward Greaves was described as a coin scale and the units of weight, Indian tolas, suggest this purpose because tolas were used for precious metals. However, tolas were also used for weighing letters in India*, and it was for postal purposes that this type of balance was advertised. They were made for use in England (ounces only) or for use by the British in India (ounces 'overland'and tolas). There was also a rare version which had two marks for the sovereign and half-sovereign, in addition to graduations for letters.

This design of letter balance was still illustrated in the Army & Navy Stores catalogue of 1907, but the maker's name was not mentioned - was it still Greaves ?.

* Ref Whittaker's Almanac 1903 p452.

NQ 3. SCALE BY G.R.KELLER. query from J.E.Gerling

"One of the ealiest scales I acquired is an analytical balance having a capacity of approx. 5 grams and a sensitivity of approx 10 micrograms. The pedestal has the phrase 'G.R.Keller-Maker -Salt Lake City, Utah, USA' I believe the instrument was made in approx. 1875 but have no information on the scale or the maker. Any data you can supply will be gratefully recieved."

Reply: from the Editor

Sorry, I have no information about this maker - Can any other member help?

NQ 4. NESTING WEIGHTS. note from U.Schmidt

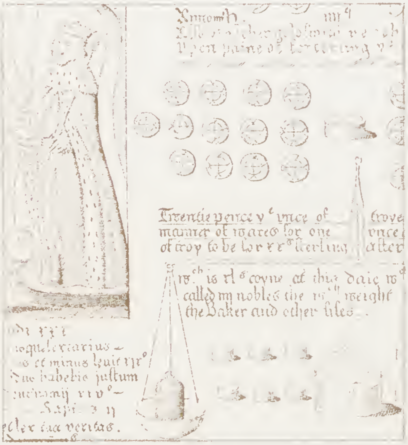
Further to newsletter No.14: "The principle that each successive cup is double the weight of the preceding ones (except the second from centre) was current from antiquity until the time when metric weights were introduced. After that time you may find nests with other weight series."

(I have a German set c1900 which has the following sequence :- 1,2,2,5, 10,10,20,50,50,100 gm and the outer case with lid is 250 gm.- Editor)

NQ 5. W & M DOCUMENT 1497. note from M.A. & D.F.Crawforth

Since completing the transcript of this fascinating old document we have discovered that 'foreigners' refers to country people who came to the town to sell their goods. i.e. people residing outside "cities, boroughs and towns corporate". Reference to this was made by John Powel, Clerk of the Market of his highness' most honourable household (1604) in his book Assize of Bread published in 1671.

Also mentioned in the same section of the Document (see pages 6 and 7 of the transcript) was the word 'alien'. This meant any person who was not a'freeman of the city by birth, servitude, purchase or gift.' - from a dictionary of 1755.



N.B. The document referred to is 'The Standard of Weights and Measures in the Exchequer' which gives in text and pictures the English standards at the time of Henry VII (1497). It also includes many regulations for merchants, markets, trades and professions.

Facsimile copies can be obtained from, in the U.S.A.;-
Albert Eaches, RD 3 Box 241,
Phoenixville PA 19460. $2.80

In Europe and outside the U.S.A from the Editor. £2.00
Members outside the U.K. please send English notes or paper money of your own currency, not a cheque or money order.

See left, 5% from the middle !

Brian Brass' query about"Bismar No. 7" (NQ 2), refers to one of the ISASC Data Sheets illustrating many forms of scales with relevant notes on each illustration. They help with classification and dating of many scales and provide a general vocabulary. The following sheets are available from the Editor at £2.00 the set. Members outside the U.K. please send English notes or paper money of your own currency, not cheques or money orders.

Bismars.
Steelyards etc.
Hanging pan scales.
Robervals etc.
Spring balances.
Pendulum balances.
Miscallaneous scales .
British postal rates.
U.K. Registration marks.

YOUNG PERSON SCALE

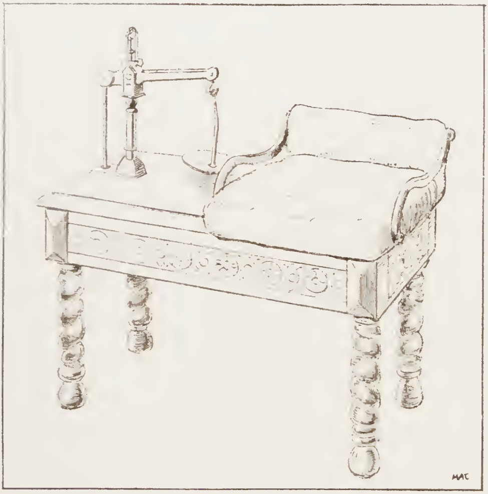
BY B.BRASS

I have in my collection a jockey scale - or to the purist, a person scale. Perhaps in todays sexually liberated world, it should more properly be a'jockperson'scale. Lets just call it a weighing chair for I am anxious to recount the other thoughts that spring to mind whenever I see it.

At the time of its manufacture by Young & Son, it was beautifully upholstered in a dragooned purple velvet which has now faded considerably. The well used brass mechanism was once highly polished and lacquered, but now only a lively and romantic imagination can recapture its original magnificence. How splendid it must have looked when, one day in the latter part of the last century, it was trundled out of No. 5 Bear Street (off Leicester square) in London where the Young family had been making scales since great grandfather John founded the business in 1793. The youngs were craftsmen and took pride in their scales, at first coin, apothecary and general trade scales, but later mostly weighing machines. It is not difficult to cast my mind back to that time ....

I can see the master carpenter standing back as he wiped a gnarled hand heavily stained with wood polish across his sweaty brow. He then leaned forward and applied a final touch with the chisel to the 'guilloche'[1] type frieze he had carved. To this, and the four fine twist-turned legs he had devoted loving care.

With what trembling anticipation did some apprentice jockey subsequently grasp the brass arms as the steward deftly manipulated the weights. Would he qualify for the handicap ? The Youngs scale would determine this to the nearest quarter ounce. In principle, a platform scale[2] it would weigh up to 29 stone if all the weights supplied were utilised; and



Person scale by
Young & Son 19th C.

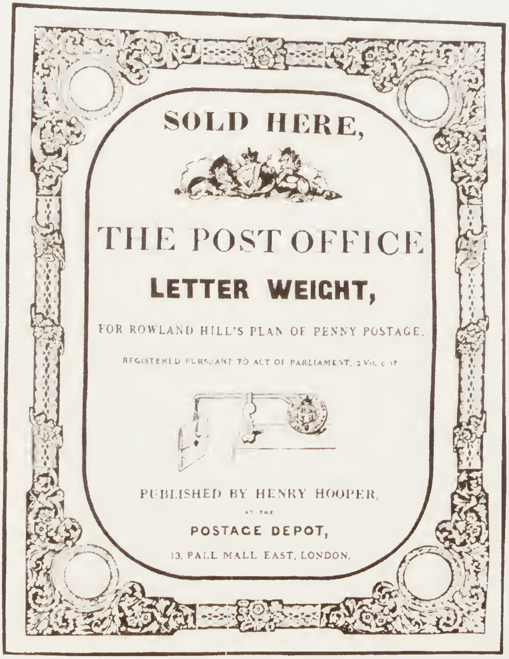
what person weighing 30 stone plus, finally sat on it and broke one of the legs ? Who knows, but back it went to No 5 Bear Street to be repaired. When it arrived it was viewed with much ill-humour by the master carpenter, not so much because he was upset to see the damage to his work, but because of a massive hangover he experienced that morning! Whether by accident, carelessness or pure spite, the replacement leg turned that day by the carpenter differed in that it was turned in the opposite direction to the other three. How many ever noticed this curious deformity in the rest of its working life will not be known; probably very few, for most would have been concerned to look only at its functional performance.

This 'odd-legged jockey scale' now stands in its pensioned state in the hallway of my house. If you turn to the illustration in my newsletter of July 1977, you can, I am certain, visualise the story.

1. guilloche - ornamental band or field with paired ribbons or lines flowing in interlaced curves around a series of circular voids.
2. see illustration No 7 on the ISASC data sheet 'Miscellaneous scales'. (details at end of Notes & Queries - Editor).

Brian Brass has a growing collection covering all types of scales, and including some unusual coin balances - the result of his addiction to auction sale rooms !

OLD ADVERTS



SOLD HERE,

THE POST OFFICE

LETTER WEIGHT,

FOR ROWLAND HILL'S PLAN OF PENNY POSTAGE.

REGISTERED PURSUANT TO ACT OF PARLIAMENT. 2 Vic c 17

PUBLISHED BY HENRY HOOPER,

AT THE

POSTAGE DEPOT,

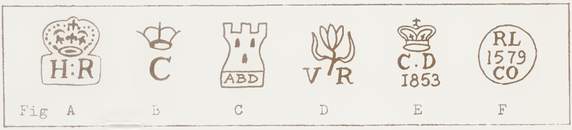
13, PALL MALL EAST, LONDON.

See article on page 2.

BRITISH VERIFICATION MARKS
PART 1

BY M.A.CRAWFORTH

A verification mark is applied to weighing apparatus to show that it has been officially inspected and approved as complying with regulations. The marks used to stamp British scales,weights and measures were diverse in past centuries, although the monarch's cypher or initial letter, surmounted by a crown, was prevalent; for example Fig A. Henricus Rex, was used at the time of Henry VIII (1509-47) and Fig B. Carolus, in the time of Charles I (1625-49). However, some caution should be exercised in attributing the object stamped to the dates of the monarch's reign, as research suggests that cyphers continued to be used long after the death of the monarch.[1]



Many major cities and boroughs had their own mark, usually a simplification of their heraldic coat-of-arms; for example Fig C. Aberdeen, and Fig D. Saffron Walden. Such local authorities throughout the country were required to keep copies of the standards, and it was recorded in 1587 that fifty-seven sets were made for this purpose. Responsibility for checking scales, weights and measures was in the hands of the Justices of the Peace, and inspections were carried out by jurymen. The oath a London juryman swore included "...and if in your search you find any false weights, or measures or scales you shall seize them and send them unto the Guildhall to the Chamberlain". (1617).[2]

In Ireland the testing and stamping of weights and measures was performed by the Constabulary, and a report of 1882 gives the typical design as a crown with the initial letters of the county below, Fig E.

Other official bodies also had the right to verify weights, examples being the Founder's Company and the Plumber's Company (London Guilds). A few locally powerful individuals, noblemen and archbishops also had their own verification marks, as had the Rector of Oxford University; Fig F. Robertus Leicester Cancellarius Oxon, date 1579. However, not all these marks had official status, and considerable confusion and conflict arose between official and unofficial inspecting bodies. Unofficial authorities defended their right to inspect on the grounds of custom and necessity, claiming that the frequency of official inspection was inadequate.

Later, in 1795 and 1797, Acts of Parliament were passed "...for the more effectual prevention of the use of defective weights and of false and unequal balances and measures." This eventually led to the creation of the post of Inspector of Weights and Measures under decentralised administration in 1834, and at that time each county was required to have its own particular design of verification mark; Fig G. Hertford County.

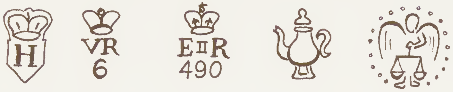


Fig G H I J K

More recently a uniform system of marks was devised and it consists of the monarch's cypher surmounted by a crown, and below it, the official number allocated to the district responsible for verification. Thus, in Queen Victora's reign a typical mark was as shown in Fig H. the number 6 being allotted to the City of Birmingham. This style of mark was introduced by the Act of 1878, and is still current (with the addition of the Roman II for Elizabeth the Second); see Fig I. where 490 is for Bristol City. It should be noted that the change to uniform stamps was not immediate. Out of nearly 700 districts, there were still 55 using their old marks in 1882.[10]

At first the manner of inspection and stamping was left to the discretion of each local authority, but later Acts of 1889, 1904 gradually tightened-up the procedure to make it uniform throughout the country. In 1904 for example, the local authorities' autonomy was removed and central administration was assumed by the Board of Trade. For the first time, comprehensive procedures were set down on a national and uniform basis.

The pattern of stamping is familiar to us all through examination of weights. Less familiar is the stamping of scales which was required only rarely until recent times, although they had to be inspected. In the document The Standard of Weights and Measures in the Exchequer[3], 1497 "Everye towne must have a com'n balans & weight & a com'n bushell, by a chaine ensealed..." (ensealed = verified). A Royal Proclamation of 1587 gave the Founder's Company the sole right to examine and mark weights for the city of London. Their mark, the laverpot or ewer (erroneously called a coffee pot today) was used from that time until circa 1824. They were apparently responsible for iron and bronze weights, but in 1614 this was extended by charter which said the Founders should "... enjoy the sizing and marking of all manner of brass weights made or wrought in the ..City of London or within three miles compass thereof ...and all manner of brass weights shall be by the makers, workers and owners of them, brought to the Common Hall...of the Founders, there to be sized and marked with...the form of an ewer."[6] Fig J.

In 1611 the Plumber's Company charter for stamping lead weights was extended to the testing of scales and they had the power of inspection, seizure and punishment within 7 miles of the City of London. Their mark was the Archangel Michael holding a sword and balance, Fig K. and they were responsible for stamping, in addition to lead weights, any other weights which had lead adjustment plugs.

Lead weights had been, and were still the most common type in use, and considerable rivalry arose between these two great Companies, the Founders accusing the Plumbers of having an unfair share of the testing of weights for which they recieved fees. One result was that iron weights with lead adjustment had to be stamped at Founders Hall - but by a member of the Plumbers Company ! Lead and lead alloy weights were banned for commercial purposes by the Act of 1834 (unless encased in brass etc).

The continued inspection of scales along with weights and measures is shown by a juryman's oath of 1611 which included "...make search in shops and houses..of all others which sell by weight... and see that their scales be not heavier than another."[4] (scales = pans from the Norse 'skal', a bowl).

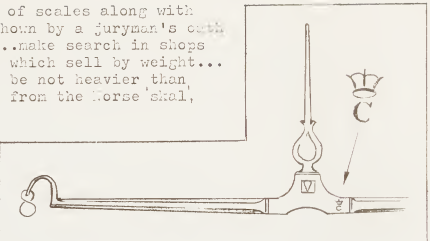


Fig L. Coin scale by R.W 1644

During the reign of Charles I (1625-49) some money scales were tested and stamped with a crowned C on the side of the beam Fig L, but I have no evidence that this practice was continued during the Commonwealth or in later reigns. However, the inference can be drawn from scale-maker's labels that inspection, at least, was continued, presumably for trader's scales:

William Grind 1751-74

> "Makes, Mends & Sells all Sorts of Scales Weights & Steelyards & Keeps them in Repair by the Year"

Joseph Lidgard 1772-

> "...the greatest Care taken of Scales & Weights Adjusted by ye year"

Robert Wenborn 1717-60

> "Scales and Weights repaired and Adjusted by the Quarter or Year"

(These are only three of many such labels from this period)

Acts of Parliament for 1795 and 1797 made it lawful for "the Justices of the Peace ...in the counties of England and Wales to appoint one or more persons...to enter into shop, mill, house, outhouses, premises, stall or standing place of any person who shall sell by retail...to search for view and examine all weights, balances and measures...and to seize any weight...not being according to the Standard of the Exchequer or any false or unequal balance, or any false or deficient measure..."

Later, the regulations arising from the Act of 1889 specifically required the stamping of weighing instruments, defined in 1904 as "scales with weights belonging thereto, scale-beams, balances, spring balances, weighing machines and other instruments for weighing". Some designs of scales (e.g. the Mancur spring balance) must have been excluded from trade use by this Act which specified "No weight, counterpoise measure or weighing instrument presenting any novel features...shall be stamped unless of a pattern approved by the Board of Trade." Approval was also required for the size of weights "Every person who uses, or has in his possession, for use of trade, a weight or measure which is not of the denomination of some Board of Trade Standard shall be liable to a fine...and the weight or measure shall be liable to be forfeited."

Verification marks were to be stamped into the metal of the weighing instrument or weight, while new scales and weights had to have a lead plug, whenever possible, to receive the verification mark, Fig M. In the case of weights, the plug was also the means of adjustment as had been the practice previously. Date stamps were also required. They were applied seperately from the marks described above and should not be confused with the numbers used to signify the inspection district. The date mark usually took the form of the last two numbers, for example 83, 96, 08 represented the dates 1883, 1896 and 1908. Fig N.(1950). Some authorities used the full date Fig O. and even added the month Fig **P.**

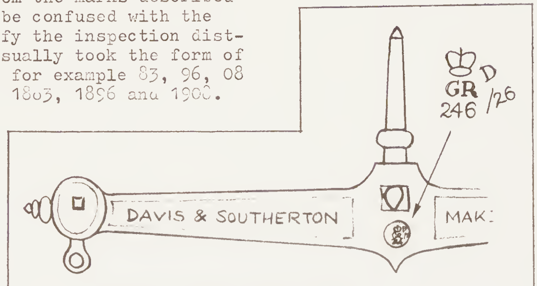


Fig M. Bread scale 1926.

Only weighing apparatus used for trade were required to be stamped, so letter scales and their weights were not included. Even GPO letter scales were exempt; "those weighing appliances which are the property of the Post-master-General are not within the provisions of the Weights and Measures Acts, although used by the possessor for selling goods in his shop". "But the authorities frequently request the inspectors to examine and test their appliances".[5]

The stamping of coin weights was the prerogative of the Royal Mint from 1774 until 1878 when the Board of Trade was made responsible, but this was later rescinded by the Act of 1904. The Royal Mint stamped approved weights with a crown Fig Q. until 1821, but from that date only flans (plain round discs) were accepted for testing. They were then machine die punched with the Mint design as proof of accuracy. No further mark was necessary Fig R. This practice continued until the withdrawal of gold currency in England in 1917. The Mint design was changed in 1843 and again when the Board of Trade took over. Weights used by banks for 'counting' coins in bulk were exempt on the grounds that sums of money were paid by number and not by weight.

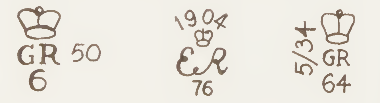


Fig N O P

There were also a great many coin weights in use which were never stamped, or which had marks of the various Assay Offices. For example the lion of Goldsmith's Hall London Fig S. and the Birmingham anchor Fig T. were in use between the 1770s and the 1840s. Although these marks appear to be genuine, no official record of such stamping has been found in Assay Office archives. So it must be assumed that once again, local authorities were unofficially supplying a pressing local need. Other marks such as the crowned I of James I and the Founder's ewer were also applied to coin weights, but this subject is a study in itself.

Inspection of scales and weights had to be carried out at least once a

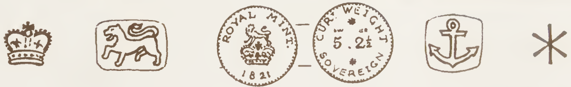


Fig Q S R T U

year, or in some special circumstances once in every two years. Additional surprise visits were also required. If the apparatus was found to comply with the regulations they were not to be re-stamped, unless the original verification mark was worn or defaced. The use of a date mark was permitted, but was not mandatory. Any weighing apparatus which did not conform to the regulations, and could not be made to do so, was to have the verification mark obliterated with a six-pointed asterisk, or star, thus making its continued use illegal. Fig U.

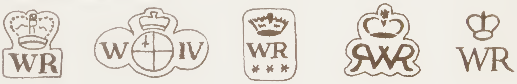


Fig V. 1 2 3 4 5

There is no comprehensive list of early British verification marks and it would take years of painstaking research to compile one - a task which has not yet been tackled, to my knowledge. To add to the problem, there were many variations of the same basic mark, for example some of the known marks for William III and IV are shown in Fig V. 1-5.[1] Even the uniform marks used after 1878 were occasionally embellished Fig W.

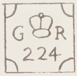


Fig W

156 old marks which have come to my notice will be shown in Equilibrium over the next few issues, along with 626 numbers allocated to inspection districts, which were listed in the Inspector's Vade Mecum of 1910.

This article is not claimed to be an exhaustive study and members are invited to write to the author with additional information or ammendments for inclusion in later issues. Any evidence of the stamping of scale-beams before 1889 would be especially welcome.

****

1. WR verification marks. By Dr R.F.Homer. Libra vol 1 p28.
2. Act of Common Council of the City of London 1617
3. See Notes and Queries
4. London Wardmote inquest 1615
5. Handbook of Weights and Measures. By J.Roberts 1908.
6. Libra. Magazine of History Circle of W & M Admin (no longer published)
7. Monthly Review. Magzazine of the W & M Administration.
8. Marks on old weights. by H.C.Dent. Devon & Cornwall Notes & Queries.
9. The Inspector's Vade Mecum 1910
10 Board of Trade Report 1882.

Michael Crawforth has a large and varied collection of small scales, and maintains an index of over 3000 British makers of scales and weights. He is co-founder and Vice Chairman of ISASC.

ISASC

EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

M.A. CRAWFORTH, EDITOR

SUMMER, 1978

EDITOR'S COMMENT

Firstly, my heart-felt thanks to the many members who have written giving their support to the re-organisation of ISASC, and their enthusiastic welcome to Equilibrium. Such kind encouragement makes all the hard work worthwhile.

One or two members also expressed regret because, they feel, the old informality has been lost. But has it been lost ? The people are the same, and that major ISASC facility, the Membership List, enables everyone to get in touch with other collectors, on a one-to-one basis, as informally as they wish.

Another member referred to a "British bias" about the first issue of Equilibrium. This was inevitable, because, at the moment, most of the material available to me is British, but as more and more of you send in contributions, so the coverage of weighing topics from America, Germany, Holland and so on, will increase. For example, this month we have a major and important work from Germany.

Among the several suggestions made by members, are a number of requests for a 'sales-exchange-wants' section. I propose to give this a trial, as a free service, in the Autumn issue. It will take the form of a loose insert in Equilibrium, as I believe it should not be a permanent part of indexed reference material. It will be called 'MARKET PLACE', and advert's should be sent to me before mid-September.

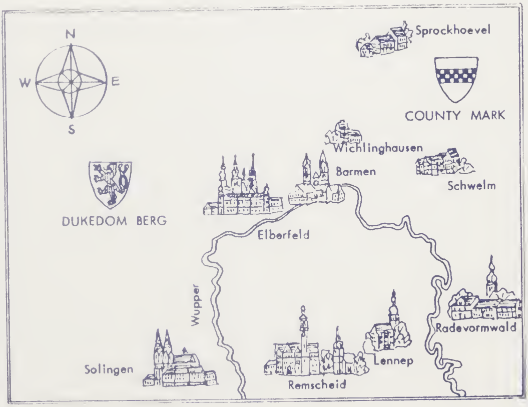
Finally, a reminder to send your suggestions, contributions etc, directly to me, to save Bob Stein having to send them on.

MONEY SCALES FROM THE DUKEDOM OF BERG AND COUNTY OF MARK. Pt.1

BY C.MONNIG

The money scales of Berg and Mark were manufactured in an epoch between the stagnation of the Middle Ages and the threshold of the Industrial Revolution. They were made in a triangular area between the cities of Koln (Cologne), Duisberg and Dortmund. It was a triangle traversed, since earliest times, by trade routes going to all points of the compass, so it was traditionally an area of commercial exchange and small rural industries supplying the needs of travellers.

The area was rich in iron ore and coal, and had water to power mills and tilt hammers, an ideal combination for iron manufacture for which the locality became famous:- Remscheid for tools, files and saws (Remscheider Werkzeuge), Solingen for swords, knives, scythes, axes etc. (Solinger Klingen), Velbert for locks and keys (Velberter Schlösser) and Halver for scale beams (Halver Waagebalken), and so on. ⊳



INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

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Albert Eaches, Vice Chairman/Treasurer R.D.3, Box 241, Phoenixville, PA 19460 U.S.A.

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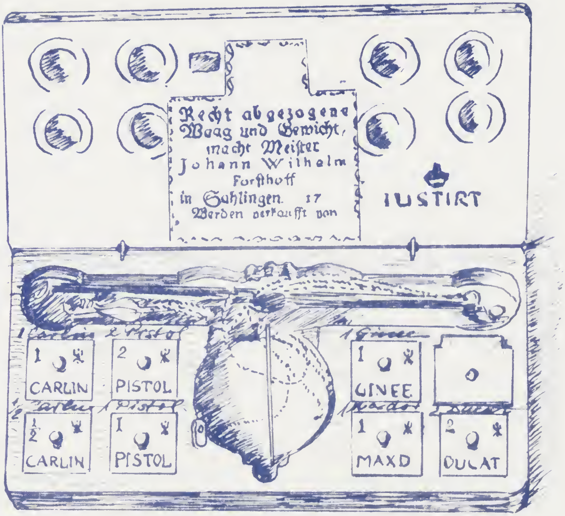
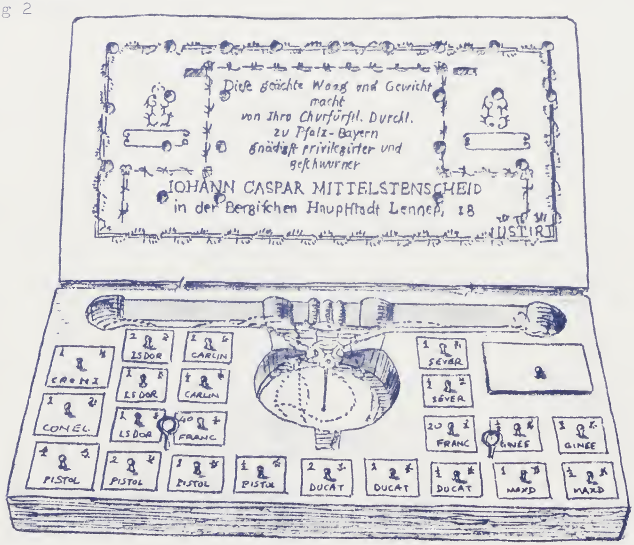

Recht abgezogene
Waag und Gewicht,
macht Meiſter
Johann Wilhelm
Forſthoff
in Sohlingen. 17
Werden verkaufft von
IUSTIRT
1 Carlin
2 Pistol
1 Ginee
1 CARLIN
2 PISTOL
1 GINEE
½ Carlin
1 Pistol
½ CARLIN
1 PISTOL
1 MAXD
2 DUCAT

Fig 1

Fig 2


Dieſe geächte Waag und Gewicht
macht
von Ihro Churfürſtl. Durchl.
zu Pfalz-Bayern
gnädigſt privilegirter und
geſchworner
JOHANN CASPAR MITTELSTENSCHEID
in der Bergiſchen HauptStadt Lennep, 18
IUSTIRT
2 LSDOR
1 CARLIN
1 CRONE
1 LSDOR
½ CARLIN
1 SEVER
½ SEVER
1 CONEL
½ LSDOR
40 FRANC
20 FRANC
½ GINEE
1 GINEE
4 PISTOL
2 PISTOL
1 PISTOL
½ PISTOL
2 DUCAT
1 DUCAT
½ DUCAT
1 MAXD
½ MAXD

The resulting prosperity created a great circulation of money and a demand for control and weighing of coins. Every merchant and banker needed money scales to deal with the gold and silver coins which originated in every part of the Continent. The number of weights needed, and the accuracy required of the scales, resulted in expensive sets, which were handed down within families of merchants for many generations, some of them surviving to the present day.

When the Rhine territory of the Dukedom of Berg was united with the Electorate of Bavaria, the trade of scale-maker expanded from the traditional areas of Nuremberg and Koln to the Dukedom of Berg, and later on, from Berg to the County of Mark. Thus, from about 1750, Berg had a thriving industry producing money scales and gold scales, which have many similarities with the money scales of Nuremberg. This success spread to the County of Mark, where production reached 500 sets of scales per month by 1783, the greater part of which was exported. Production declined in the early 1800s and ceased c.1830.

Scales made by various makers of the Mark and Berg areas bear a marked similarity. Almost all of them are in rectangular, cut-from-solid, cases made from a pale, close-grained wood, which was stained blackish-brown. The edges of the lid were usually moulded and there were either one or two hooks made of brass and decorated with 4 or 5 'bird's-eyes', see Fig 9*. The cases were made in several sizes from about 60 x 110 to 90 x 150 mm., for 4,5,6 or 8 weights, and large ones about 90 x 180 to 110 x 190 mm., for 16,18,22 or 25 weights. Rare examples were polished and decorated with book-binder's tooling, or very rarely, covered with tooled leather.

Inside the lids was affixed a printed label giving the maker's name and usually referring to his royal permission to make scales, Figs 3,4,5,7. A few of the makers were also official adjusters of scales and weights, and this was proudly indicated on their labels, Fig 7. The word JUSTIRT (adjusted) was branded into the lid, surmounted by a symbol, e.g. three crowns for Koln, or the Prussian eagle, Fig 10*. One exception was the brand JICVMAGZ on the boxes of Johann Daniel vom Berg. My interpretation of this is Justirt In Coln Und Mark AbGeZogen.

Many labels had decorative borders of garlands, rambling or interlaced banding, flowers or stars, Figs 3 to 7. A few had allegorical figures of Justice and Faith, like Johann Phillip Herbertz, Fig 4., of Justice and an armoured Knight, or had two angel puttos (both Mittelstenscheid). Provision was often made for the date, by printing the first two or three digits, leaving the last figures to be written-in by hand, but unfortunately, this was usually forgotten.

WEIGHTS WERE PROVIDED FOR THE FOLLOWING COINS:

Carlin
Conventionstaler
Crontaler
Ducat
Franc
Gold Gulden
Guinea

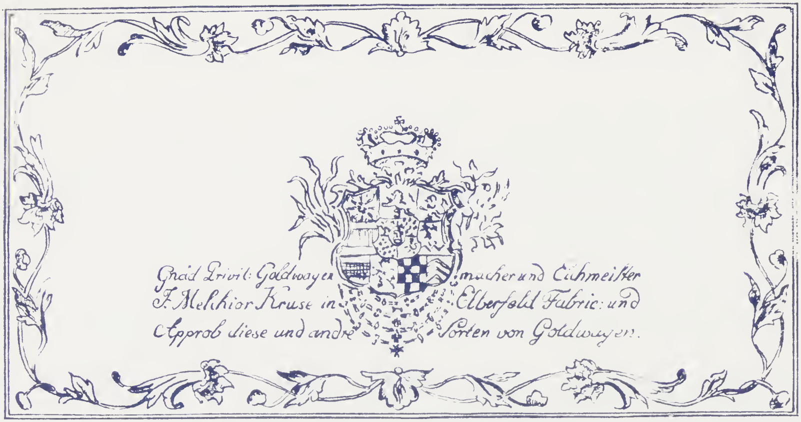
Louis d'or
Max d'or
Neuer Schild Louis d'or
Pistole
Schild Louis d'or
Severin - Souverain d'or
Son Pistole

AND RARELY FOR:

Malta
Mirliton
Noailles
Rosenbel
Ryder

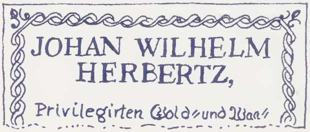
---

* See Part 2.



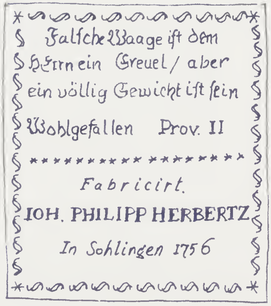
Gnäd Privil: Goldwayen macher und Eichmeiſter
J. Melihior Kruse in Elberfeld Fabric: und
Approb diese und andre Sorten von Goldwayen.

Fig 5



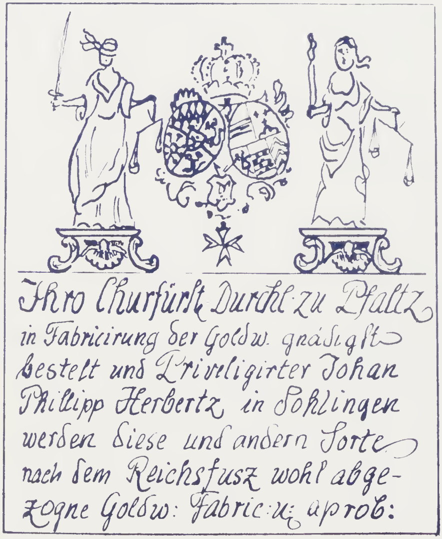
JOHAN WILHELM
HERBERTZ,
Privilegirten Gold= und Waa=

Fig 3



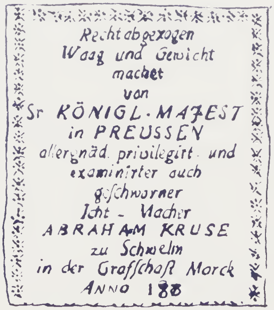
Falſche Waage iſt dem
HErrn ein Greuel / aber
ein völlig Gewicht iſt ſein
Wohlgefallen Prov. II
* * * * * * * * * * * * * * * * * * *
Fabricirt.
IOH. PHILIPP HERBERTZ
In Sohlingen 1756

Fig 6



Ihro Churfürſt Durchl: zu Pfaltz
in Fabricirung der Goldw. gnädigſt
bestelt und Priveligirter Johan
Phillipp Herbertz in Sohlingen
werden diese und andern Sorte
nach dem Reichsfusz wohl abge-
zogne Goldw: Fabric: u: aprob:

Fig 4



Recht abgezogen
Waag und Gewicht
machet
von
Sr KÖNIGL. MAJEST
in PREUSSEN
allergnäd. privilegirt und
examinirter auch
geſchworner
Icht - Macher
ABRAHAM KRUSE
zu Schwelm
in der Grafſchaft Marck
ANNO 188

Fig 7

Some characteristic labels and inscriptions

Waag und Gewicht / macht / von Ihro Churfl. Durchl. / zu Pfaltz /
gnädigst privil. examin. / und geschworner / Icht - Macher /
J. P. ÆCKERSBERG / auf Wichlinghausen im / Barmen 1781

Diese geächte Waag und Gewicht / macht / von Ihro Churfürstl. Durchl. /
zu Pfalz - Bayern / gnädigst privilegirt und / geschworner /
JOHANN DANIEL vom BERG / in der Bergischen Hauptstadt Lennep, 178

August Braselmann

Waag und Gewicht / macht / von Ihro Churfürstl. Durchl. zu Pfaltz /
gnädigst privil. examinirt / und geschworner Ichtmacher /
JOH. PET. BRASELMANN, / auf Wichlinghausen in Oberbarmen / 178

Diese nach dem neuen / Conventions-Edicte recht / abgezogene Waag
und Gewicht / macht / der von Ihro Churfürstl. Durchl. / zu Pfalz -
Bayern exa- / minirt, privilegirt und / geschworner /
JOHANN DANIEL ELLINGHAUS / in Radevormwalde 1789

Diese nach dem neuen / Conventions-Edicte recht / abgezogene Waag
und Gewicht / macht / der von Ihro Königliche Majestät / in Preußen
gnädigst exami- / nirt, privilegirt und / geschworner /
JOHANN DANIEL ELLINGHAUS / im Holtskamp beim Hottenstein
Hochgericht Schwelm 1802

Recht abgezogene / Waag und Gewicht / macht Meister /
JOHANN WILHELM / FORSTHOFF / in Solingen, 17
Werden verkaufft von

Diese geächte Waag und / Gewicht macht /
JOH. WILHELM FORSTHOFF / Goldwaagen-Fabricant / in Solingen

Recht abgezogene / Waag und Gewicht / macher / Sr. KÖNIGLICH. /
MAJEST. in PREUSSEN / allergnädigst privilegirt und examinirt auch
geschworner / Icht-Macher
PETER CASPAR HANE / im Hochgericht Schwelm bey Horath 1795

Falsche Waag (symbol) ist dem / HErrn ein Greuel, aber / ein völlig
Gewicht (symbol) ist sein Wolgefallen. PROV. 11
JOHAN ABRAHAM / HERBERTS. / 1754

Justitia Coat of arms Conscientia
Ihro Churfürstl. Durchl. zu Pfaltz / in Fabricirung der Goldw. gnädigst /
bestelt und Priveligirter Johan / Phillipp Herbertz in Sohlingen /
werden diese und andern Sorte / nach dem Reichsfusz wohl abge- /
zogne Goldw: Fabric: u: aprob: 1772

JOHAN WILHELM / HERBERTZ, / Privilegirten Gold- und Wag-....

JOHN WILL^{M}. HERBERTZ, / In Stidwell Street N^{o}. 5 near the French
Change, S^{t}. Ann's Soho

Recht abgezogen / Waag und Gewicht / machet / von /
Sr. Königl. Majest / in Preussen / allergnäd. privilegirt- und /
examinirter auch / geschworner / Icht - Macher /
ABRAHAM KRUSE / zu Schwelm / in der Grafschaft Marck / Anno 177 1.

Gnäd: Privil: Goldwagen Coat of arms macher und Eichmeister
J. Melchior Kruse in Elberfeld Fabric: und
Approb. diese und andre 1785 Sorten von Goldwaagen

Justitia Justirte / Goldwaage / von / Knight
J.C. Mittelstenscheid / Lennep

Recht abgezogen / Waag und Gewicht / macht / der allergnaedigst
privileg. / und examinirter Ichtmacher /
JOH. PET. POPPENBERG / aus Westphalen / 177

Recht abgezogen / Waag und Gewicht / machen / von Sr. Königl. Majest.
von Preussen / allergnädigst privilegirte und examinirte / Ichtmacher
Gebrüder / DIED.PET. CASP.DIED. PET.CASP. POPPENBERG /
im Amt Blankenstein bey Sprockhövel / ANNO 18

Cum Clementissimo Privilegio Serrenissimi Domini / Electori Palatini,
ad Normam Imperii / Correctior ordinata a Joh: Caspar Springer /
Gemarke d. 13^{t}. augst 1772 2.

TYPICAL TRANSLATIONS:

1. Properly adjusted scales and weights made by his Royal Majesty in Prussia's graciously privileged, examined and sworn adjuster, Abraham Kruse, at Schwelm in the County Marck, Anno 177_.

2. Graciously privileged by your Electorate's Serene Highness in the Palatinate, adjusted to the standard of the Empire, by J.C.Springer.

GLOSSARY:	Allergnadigst	Most graciously.	Gnadigst	Graciously
	Approbirt	Licensed	Privilegirt	Privileged
	Examinirt	Examined	Bestellt	Appointed
	Geschworner	Sworn	Icht-Macher	Adjuster
	Justirt	Adjusted	Abgezogen	Adjusted

****

Part 2 of C.Monnig's article will appear in the Autumn issue of EQM.

****

Carl Monnig lives in Cologne, and in his retirement, he enjoys many interests, drawing, handiwork, antiques and the countryside. He collects scales and weights, and has made a special study of those which were made in Berg and Mark.

CAUGHT SHORT

BY M.WORMSER

Until my entrance into the retail coal industry, the real meaning of the foregoing title was foreign to me, but it soon became clear when the Morton Coal Company was started. Our little yard was on the Gowans Canal in Brooklyn, N.Y.,and it consisted of land with a waterfront, silos under construction, and a 20 x 20 foot frame building with one platform scale, on which our three broken-down trucks were weighed, manually. Fig 1.

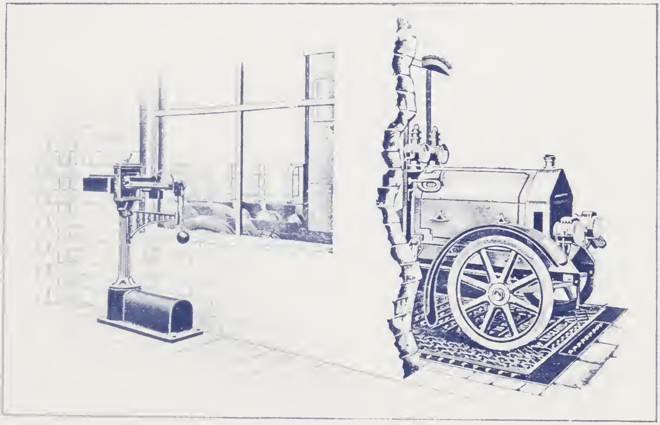


Fig 1. A similar scale by W & T Avery Ltd, 1916.

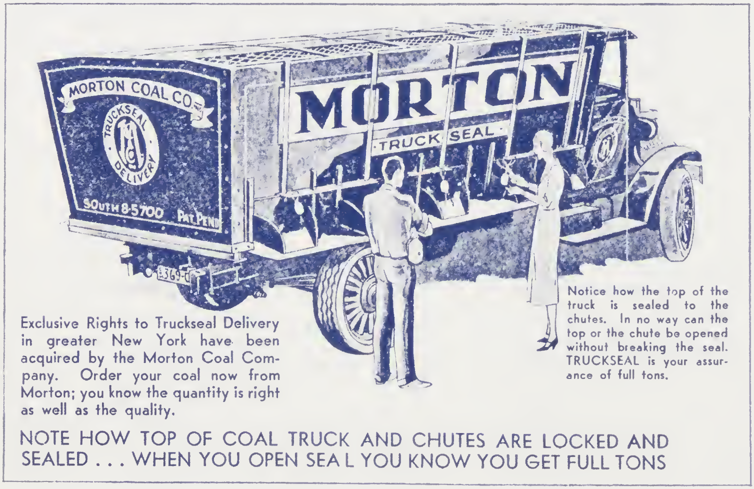
The procedure was to weigh the truck empty, to find the 'tare' weight, and this amount was set on one of the double beams on the scale. Then, when the truck was full, it was re-weighed using the weight on the second beam, thus indicating the weight of the coal. A very simple procedure, if you are experienced, careful, not answering telephones, checking credits and handling stray customers ! All of which I was doing, in addition to being the weighmaster, to try and hold down the overheads of the newly-formed Morton Coal Company.

Our drivers were instructed to telephone the office if ever a Morton truck was picked-up by an Inspector from the Bureau of Weights and Measures, and it so happened that such a call came in after I weighed my first truck. The Inspector took the truck to a competitor's yard for testing, and I rushed along to observe the procedure. To say I almost went through the floor, from the result of the test, was an understatement. The truck was 500 lbs short, over and above the allowance for spillage. I was dumbstruck ! This would be the beginning and the end of the recently-born company. However, maybe I had an honest face, because

Mr. Ward, the Inspector, directed the truck back to our yard and simply ordered a yardman to shovel on the missing 500 lbs. He then took his leave.

I was so grateful that, at Christmas, I'phoned him to wish him the season's greetings, and to tell him that Santa Claus had left a parcel for him. He proved to be an honest man and thanked me for my offer, but merely said "No", and added "Don't ever make the same mistake again." Such advice certainly was unnecessary. I had only weighed the one truck, and it was the only one I ever weighed in my twenty-five years in the retail coal industry. As a consequence, I was never "caught short" again.

Subsequently, it became easier and more accurate to weigh trucks. Due to vast improvements in platform scales, automatic weighing became the practice. It was still done with the double beam, as before, with the tare on one beam, but when the full truck came back onto the scale, the weight of the coal was indicated automatically on a dial, by the mere flick of a switch.



Exclusive Rights to Truckseal Delivery in greater New York have been acquired by the Morton Coal Company. Order your coal now from Morton; you know the quantity is right as well as the quality.

Notice how the top of the truck is sealed to the chutes. In no way can the top or the chute be opened without breaking the seal. TRUCKSEAL is your assurance of full tons.

NOTE HOW TOP OF COAL TRUCK AND CHUTES ARE LOCKED AND SEALED . . . WHEN YOU OPEN SEAL YOU KNOW YOU GET FULL TONS

Fig 2.

There were many tricks practised by unequipped dealers (called pedlars), who loaded-up in our yard, and even some properly equipped merchants had "strange habits". When loading a truck, a certain amount of coal dust accompanied the contents, and it had to be watered down. If this was not done, the dust could fly throughout an entire home, blackening all walls and contents, when unloading. Legitimately, watering had to take place after weighing, and this practice was followed by most reputable dealers, but there were exceptions !

The construction of the trucks themselves sometimes led to malpractice. ⊳

Some were constructed for full loads, others were partitioned for carrying divided loads, so that a truck with ten partitions was presumed to hold ten tons. However, some unscrupulous pedlars fitted false bottoms to the partitions, so they paid for a light load but charged each customer for a full ton.

Many horsecart pedlars (ice, coal, wood Joes, I called them) would drive onto our platform scales with ice in their carts. After weighing, they would then drive down into our yard to load from the silo nearest to the fence. Then, unless our eagle-eyed yardman was alert, the pedlar would heave the ice over the fence and take coal in its place. Of course, the tare weight had been taken with the ice in the truck, so he got free coal equal to its weight, and the ice subsequently melted, leaving no trace of his crime.

There were so many tricks, it was understandable why customers would say, when placing an order, "Be sure to deliver the right weight". My partner became so annoyed with this repeated request, that he entered the office, one day, with an idea which I immediately had patented. In future, when a truck was loaded, we covered it with iron mesh screens, with connecting shafts down to the chutes from which the coal was unloaded. We sealed the shaft to the unloading door. This operation we trademarked and entitled "Truckseal Delivery", and further stated to the customer "You cut the seal" Fig 2.

This security measure put a damper on coal customer's suspicions, and furthermore, the Morton Coal Company had laid to rest the traditional view of coal dealers as rogues.

****

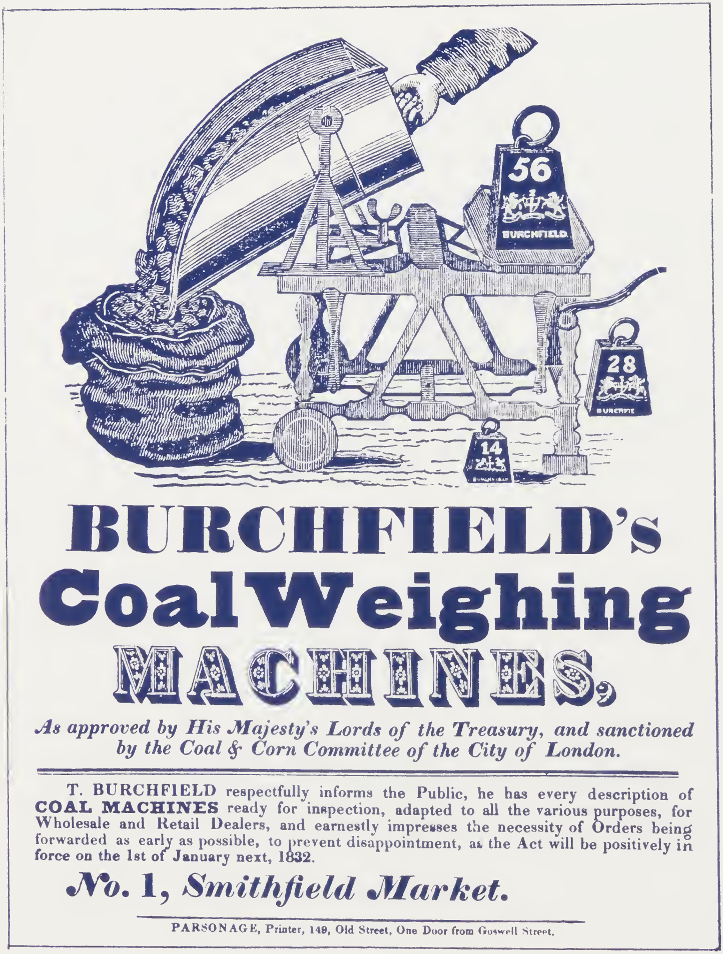
Morton Wormser has a large and varied collection of scales, outstanding for its many unusual examples. He has a hilarious fund of anecdotes, and is as addicted to tennis, as he is to scales.

CONTEMPORARY COMMENT

" For the purpose of ascertaining the weight of coals sold in quantities of less than a half a ton within any yard or place where they may be kept, or from any cart or carriage on which they may be carried by dealers for sale, such dealers shall be obliged to keep scales and weights or steelyards of the legal standard within such yard or other place, and ... also attached to the cart or carriage used by them for the sale of such coals, whereby the coals so sold by retail may be weighed at the time of the sale or delivery, and such dealers shall be obliged to weigh the same, upon being required to do so either by the person purchasing the same or by any officer of police: and any such dealer failing to have and keep such scales and weights or steelyards, or refusing to weigh the coals as aforesaid, shall be liable to a penalty not exceeding 40s, and £5 for any subsequent offence."

The Burgh Police (Scotland) Act, 1892. Editor.

OLD ADVERTS



BURCHFIELD's
Coal Weighing
MACHINES,

As approved by His Majesty's Lords of the Treasury, and sanctioned by the Coal & Corn Committee of the City of London.

T. BURCHFIELD respectfully informs the Public, he has every description of **COAL MACHINES** ready for inspection, adapted to all the various purposes, for Wholesale and Retail Dealers, and earnestly impresses the necessity of Orders being forwarded as early as possible, to prevent disappointment, as the Act will be positively in force on the 1st of January next, 1832.

No. 1, Smithfield Market.

PARSONAGE, Printer, 149, Old Street, One Door from Goswell Street.

DATA REQUEST

I anticipate dealing with the subject of egg scales in a future issue. Would members having egg scales, or information about egg scales, be kind enough to send me details ?

Editor.

THE SCALE IN QUESTION

BY D.F.CRAWFORTH

This is a scale with some puzzling attributes. The design has some very uncommon features. Could this mean it is a figment of a reproducer's imagination ?

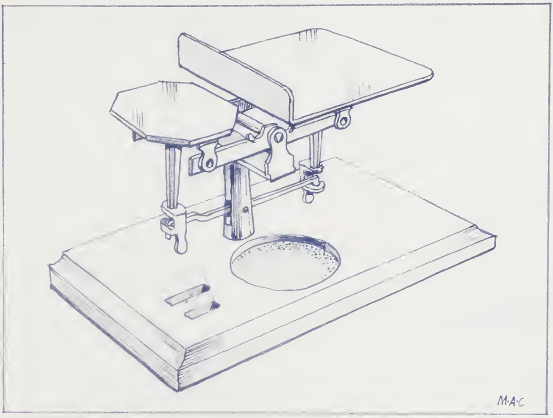
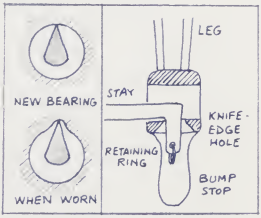


Fig 1.

The top three bearings are not bushed with steel, which could imply reproduction, but they are very heavily worn from the original round hole. Thus, the scale has been used extensively, and must be old. Reproduction scales were not made before about 1970, so, consequently, it must be a genuine scale, sold for proper use.
The bottom bearings confirm this opinion, being good ones with a form of knife-edge for side loads, which were more complex to make than the usual pin-and-hole, so a reproducer would be unlikely to bother to make them.

The whole structure is heavy brass, giving it a very solid, chunky look. It sits firmly on its central pillar and is stronger than is necessary for a letter scale, so it was, presumably, for weighing small parcels, too.



What colour was it originally ? Bright brass or black patina ? It is very black under the pans, and at least two Victorian manufacturers specialised in giving their brass scales a black finish (which is sometimes mistaken for bronze or iron). The blacking is so even, on the scale in question, and so lustrous, that I think it had a black patina all over, in its original condition.

There are two slots in the wood on the left side. What were they for ? I have not seen slots on a postal scale before, but the size is right for either the $\frac{1}{2}$oz and $\frac{1}{4}$oz weights, or for the $\frac{2}{3}$oz and $\frac{1}{3}$oz weights, placed on edge. This would allow easy access to the next biggest weight on the central stack, so perhaps, the 1oz weight was most commonly used. That would suppose a date between 1871 and 1879. Alternatively, if the main need was frequent handling of $\frac{2}{3}$ and $\frac{1}{3}$oz weights, for France, it suggests a date between 1869 and 1876.

The weights with the scale fit the hole reasonably well, but they do not match each other. The writing of 'oz' is in various type-faces and sizes. The colour of the brass varies, and they have been stamped by Weights and Measures inspectors. The latter shows they were used for trade purposes, and not for a domestic postal scale. The weights were stamped in various districts of England, so they come from different scales. To summarize, they are not original, nor appropriate, to this scale.

So, what weights did the scale have ? There are only two slots and a central hole as evidence. The slots give the proportions of the weights as unusually flat. The hole gives the diameter of the largest weight - it fits a thick 1lb weight, or a flat 8oz weight. The flat weight is most likely to be right, matching the weights in the slots, so probably the central stack comprised 8, 4, 2 and 1oz weights.

It is a scale with very English style detail on the beam, but no maker's name. Did it ever have a manufacturer's label, on a box, or under the base ? If it did, there is no evidence left.

Thus, the scale in question is a small parcel and letter scale, probably Victorian, English, and rare, but lacking the evidence of its weights.

Does asking such simple questions help to understand a scale ? I believe so, as it clarifies the areas of certainty and supposition, and gives us standards of comparison for other 'unknown' scales.

****

Diana Crawforth bought their first scale as a present for Michael in 1968, little knowing what she was starting ! She collects buttons, small hand tools, and optical aids, and teaches half-time. She plays an important part in collecting, and researching, scales, and is an essential sounding-board for editorial ideas.

ERRATUM EQM page 13; in the second paragraph, after Figs 1 & 2, the second sentence should read : 'All base metals, except lead, have a lighter specific gravity than silver, and all base metals are lighter than gold.' Apologies to G.Mallis - Ed.

CAVEAT EMPTOR

BY M.A.CRAWFORTH

The following illustrations were taken from a catalogue of reproduction brassware which ranges from ale and grain measures through horse brasses, bellows, candlesticks, fire irons, pestles & mortars, gunpowder flasks, keys, post horns, lamps and warming pans, to scales and weights. The scales are made from brass with beams about 400 to 500mm (16 to 20ins) long, and the wholesale prices range from £9 to £20. They can be seen in antique shops and markets at two to three times these prices. Some of the scales, for example Fig 1, are based on real scales, in this case a typical Eastern Mediterranean steelyard, but others seem to be flights of fancy, e.g. Fig 4.

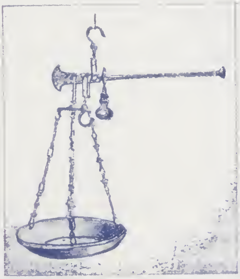


Fig 1,

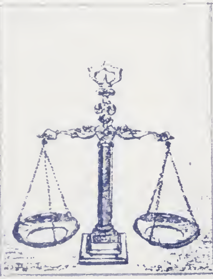


Fig 2.

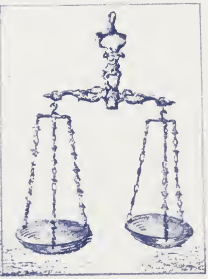


Fig 3.

It is sometimes very difficult to detect a good reproduction, but familiarity with genuine scales, paying attention to details, is a great help. I have found that 'repros' usually fall short on some or all of the following:- Design, Construction, Quality, Signs of Age.

DESIGN : Arrangement of the parts is often such that the scales, if genuine, could not be used properly. The beam end pivots are set lower than the main pivot, e.g. Fig 2, or the pans may be suspended high up by a column which is too tall, or by chains which are too short, like Fig 2. On steelyards, the shackles may be so close that they touch, so preventing free movement; or the instrument does not balance level when the weight is placed on the zero mark. Other parts of the scale may be made from modern components. Chains made today, for example, are often made from thinner wire, have less compact loops, and are of a different design from those made in the 19th century.

CONSTRUCTION : Reproducers simplify wherever possible - they haven't the time or the skill to fit hardened steel knife edges and bushed bearings, or to adjust weights. Repro' scales usually have round pins instead of knife edges, and these may be cast in brass as part of the beam. They do not, normally, have steel bushed bearings. Such poor pivots are an immediate give-away. However, some real, but cheaply made letter scales or coin balances were made without bushes. Also, balances such as the pendulum type, by nature of their design, had hardened round steel pins, not knife edges - this is where familiarity with real scales is an essential part of the assessment.

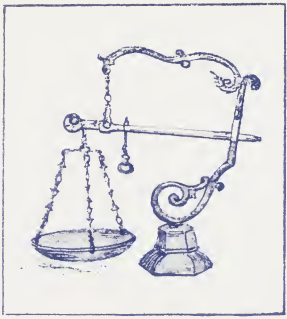


Fig 4.

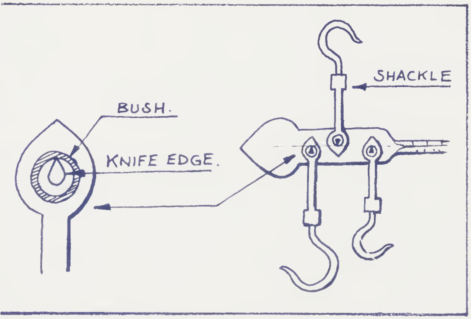


Fig 5.

QUALITY : Some repro's are made from very good yellow brass, but others, especially weights, have a pinkish-gray tint. Castings are frequently poorly defined and crudely finished, but beware, so were some originals. Plaster-of-Paris is used to fill hollow brass bases, instead of wood, and may be seen in the weight sockets. Wood bases on repro's usually lack the accurately shaped edges of the originals, and have fresh, clean looking varnish.

SIGNS OF AGE : Artificial ageing of repro's gives the brass a grayish-black colour, instead of the brownish-black which characterises the genuine patina. Reproductions lack the natural wear which results from years of continued use; for example, sharp edges will still be sharp, and the artificial patina may be the same colour and thickness on all parts, both projecting, concave and inaccessible. Freshly applied lead, used to adjust pans or to simulate verification plugs in weights, appears silvery or pale gray, whereas old lead is dark gray in colour.

REAL OR REPRO' ? - A TEN POINT CHECK LIST BUYER BEWARE !

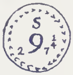
1. Knife edges.
2. Bushed bearings.
3. Colour of brass.
4. Colour, and distribution of patina.
5. Signs of wear.
6. Design feasibility.
7. Quality of casting.
8. Quality of woodwork.
9. Authenticity of marks (maker's, verification etc).
10. Are weights the correct weight ?

Detection of reproduction nesting weights is a study in itself, but check-points 3,4,5,7,9 and particularly 10, all apply - see the very informative article by Utz Schmidt in ISASC Newsletter number 14.

NOTES & QUERIES

NQ 6. COIN WEIGHT FOUND

query from the Lincoln Archaeological Trust



We recently found a coin weight during excavations, in an unstratified deposit. I am enclosing an impression of it .... It is about 2mm thick. Could you tell me which coin it was used to check ?

REPLY

from the Editor

I am glad to be of help with the coin weight you found recently. It was for the nine shillings piece, which was one of a series of gold coins from Portugal. The coins were circulated in great numbers in England and Ireland, during the 18th century, when British coinage was in short supply. They were accepted for commerce, but were illegal for Governmental transactions.

The value of the coin in English money was usually marked on the weight, and also, quite often, the weight in Pennyweights and Grains, as on your example, 2 Dwt $7\frac{1}{4}$Gn. The coin series was :-

Double Johannis	£3 12s	18Dwt	10Gn.	1/4 Johannis	9s	2Dwt	$7\frac{1}{4}$Gn
Johannis	36s	9	5 .	1/8 Johannis	4s6d	1	$3\frac{1}{2}$
½ Johannis	18s	4	$14\frac{1}{2}$.				

NQ 7. ALDERMAN BALANCE

query from L.A.uit den Boogaard.

I have on hand an Alderman Parcel Post balance; do you know this mark ? It only gives the postal rates 6d, 9d, 1s & 1s 3d. Do you know how old it is ? It is a spring balance with a tubular brass case and a hook.

REPLY

from the Editor

T.W.Alderman & Co were wholesale and manufacturing stationers of Temple Works, Brett Road, Hackney, London. It is probable that the balances were made for them, and evidence indicates that the maker was American. The postage rates were current during the period 1923 - 35. (Luckily, I also have one of these balances, so I was able to check the weights associated with the rates marked on the balance).

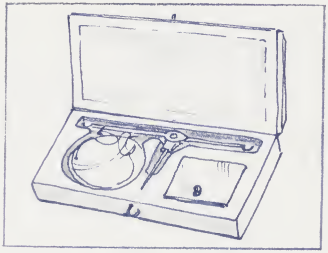
NQ 8. AMERICAN SCALE ?

query from M.A.Crawforth

I have recently bought a scale which, I think, is from the U.S., because it has an American-style eagle on the lid, holding a shield bearing the stars and stripes. The case is covered with dark green leathercloth, and the interior is lined with dark red velvet. There is a brass lid on the weight compartment, which unfortunately, is empty. The beam is a very simple design made from brass, with swan-neck ends. The pans are only slightly dished, and have turned-over rims.

Do you recognise it as American ? What weights would have been included originally ?

REPLY from G.Mallis



The scale you describe is, without doubt, American ... the same as several I have seen over the years.

The weights I have seen with such a scale are always pennyweights and grain weights. These are usually squarish, and stamped with circles from one to six for dwts, and Roman numerals for grains.

NQ 9. SCALE MARKED D.V.

query from R.Willard

I have a query about a scale bought in Europe, in 1955. It stands 7" high. The steel beam is $5\frac{1}{2}$" long, and marked D.V. on the central finial. Hangers and pans are brass, no marks; each pan is $2\frac{1}{4}$" across. The pillar is white metal, gilded. In the well, which has a hinged lid, are two sheet brass weights marked 2DECI and 5DECI.. The knobbed cylinder metric weights are in the denominations 1-2-2-5-10-10-20. Except for the square pan with raised sides, I would have thought it was a medical scale. Can you help me to identify it ? See Fig 1a.

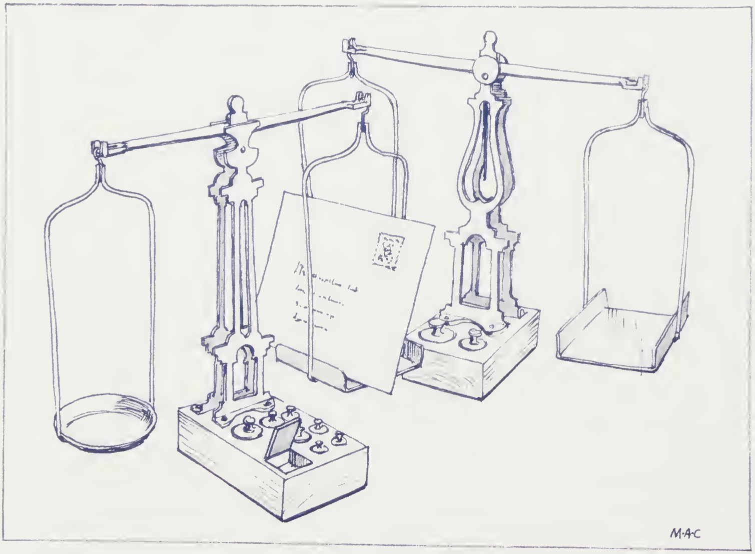


Fig 1a Fig 1b

REPLY

from the Editor

The scale is French, and was used for weighing letters, which is why one pan is rectangular – to take a letter on its edge, or to take small packages. Two examples of this type of scale are illustrated by Lavagne in his little booklet 'Le Petite Histoire du Pesage dans l'Administration Postale'. I bought a similar scale in Paris recently, Fig 1b. and it has provision for only two weights, 7.5 and 15 grams, both postal units current from 1827 to 1875.

I feel certain that the lidded well was originally for stamps, and not for small weights. There is plenty of evidence for such compartments on British scales, which have a similar sloping bottom to assist removal of the stamps. However, it is just possible that examples, like yours, with several weights, were also intended to double as coin scales. In which case, the well might have been used for fractional weights. I have no evidence for this. Incidentally, my scales are also stamped D.V. on the finial.

REFERENCE NQ 4. page 17.

from C.Monnig

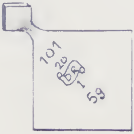
About nesting weights: The permitted series for cups was set down in the gauging statutes (des Norddeutschen Bundes) of the North German confederation of 16 July 1869, No.25, and the statutes (der Kaiserlichen-Normal-Aichungs-Kommission) of 27 December 1884, No.37. :-

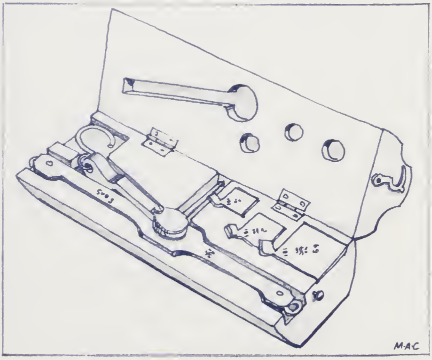
Nested weights of 1 Kg must be in 12 parts; 500,200,100,100,50,20,10,10, 5,2,2, and 1gm.
Nested weights of 500gm must be in 11 parts; 250,100,50,50,20,10,10, 5,2,2, and 1gm
Nested weights of 200gm must be in 9 parts; 100,50,20,10,10,5,2,2, & 1g.
No other series were permitted.

NQ 10. CAN YOU HELP ?

query from M.A.Crawforth

The sturdy brass beam is about 120mm ($4\frac{3}{4}$") long, stamped 500g and the German verification mark 20 DR 1. Brass weights 5,2,2,&1g stamped 101 and the same mark. Wooden box.
What was it for ?
What were the pans like ?
When was it made ?





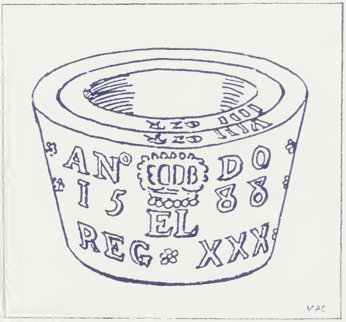
BRITISH VERIFICATION MARKS

PART 2

BY M.A.CRAWFORTH

In Part 1. of this article, I gave a brief history of the examination and verification of British scales and weights. I shall now deal with some aspects in more detail.

Returning to the Elizabethan period, the new Standards legalised in 1587 were copied and inscribed, in abbreviated form :- ANNO DOMINI 1588 ELIZABETH ANNO REGINA XXX. (i.e. the 30th year of her reign). Each cup of the nesting troy weights, was marked with its value in ounces, and a combined T and R for troy,e.g. VIII oz TR. Avoir weights were marked with an A for "averdupoise" (see Kisch p104).



The cost of making 57 copies of the new Standard weights, plus the originals for the Exchequer, was £3.8s.1d for each Troy set, and £6.0s.10d for each Avoir set, making a total of £547.17s.2d. The official list of recipients includes 42 counties, 15 towns, the Tower of London, The Goldsmith's Livery Co. and the Queen's Hospital. It is puzzling that there were 60 recipients for 57 copies, but this could be explained by some recipients only requiring troy and others avoir sets. The Goldsmith's Company, perhaps, would only have needed troy weights. Examples of these standards are extant, and may be seen,for example, in the Science Museum, London.

Reference was made to the powers of seizure held by the jurymen throughout the period discussed. These powers were also given to Inspectors of Weights and Measures, and the Board of Trade regulations of the late 19th Century, empowered them "to seize any articles which are liable to forfeiture" Namely: "Weights or measures in one's possession for use in trade, and not of the denomination of some Board of Trade Standard; any weight, measure, scale, balance or steelyard which is false or unjust, and in the possession of anyone for use in trade, or which is used for the wilful commission of any fraud; ...any measures or weights which are unstamped; ... all measures, weights and weighing instruments having thereon a forged or counterfeit stamp. A genuine stamp transferred from one article to another is a forged stamp"

Of course, the powers to reject or seize scales, weights and measures and to demand their adjustment, repair or replacement, was a difficult and tempting position, if the Inspector was personally connected with any scale making and repairing business. Such positions did occur. Ralph Berkeley, for example, was a scale maker and repairer of 39 Flag Lane, Sunderland during the period 1856 to 1871. Concurrently, he was also the official Weights and Measures Inspector for the town , with an office nearby at 40 Flag Lane. Evidently, Berkeley was honest and trustworthy, holding office for nearly twenty years. However, such an invidious situation was prohibited, towards the end of the 19th century, by the Board of Trade: "An Inspector of Weights and Measures shall not, during the time he holds office, be a person deriving any profit from, or employed in the making, adjusting, or selling of weights, measures, or measuring or weighing instruments."

As already intimated, the 19th century was a period of great change. Inspection and verification by the two Livery Companies, Founder's & Plumbers, died out in the early part of the century, but other bodies became established. The Mersey Docks and Harbour Board, for example, had its own officer in charge of weights and measures. Towards the end of the century, this officer is said to have tested, annually, over 20,000 weights, 900 scales and over 100 weighbridges, all on the Board's premises in Liverpool. This Board was, by no means, the biggest in the Country.

Inspection by local juries declined also, as the Weights and Measures administration became more comprehensive. Chaney estimated that, by 1897, less than a dozen such juries were appointed by the 'Courts Leet', under the statute of 1325.

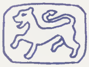
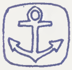
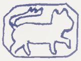
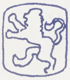
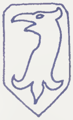
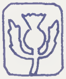
The ancient duties of the Clerk of the Market, were brought up to date in the Markets and Fairs Clauses, enacted in 1847, whereby "Market authorities ... are to provide sufficient and proper weighing houses, or places for weighing or measuring commodities sold in the Market or Fair, and to keep proper scales, weights and measures..."

Turning now to more recent times, and the verification of new weighing apparatus; testing and verification of new scales and weights was carried out at a suitable place, nominated by the local authority. As weights were frequently made in batches of the same denomination, the inspector might verify only 4lb weights on one visit, 7lb on the next, 1lb weights on another visit, and so on. The verified weights would, then, be stored by the manufacturer, and made up into sets as required. Consequently, a set might be made up of weights bearing different date stamps, but the District marks would be the same. The use of a district mark was not mandatory on weights under 4oz.

Starting in this issue, are the list of District numbers and the District marks. The illustrations of marks so far discovered, are arranged alphabetically by Town or County. In some cases, several variations are included under one district, e.g. Birmingham City. Authorities varied widely in the number of variations used. Some, like Newcastle, apparently used the same mark for many centuries, while Sunderland, only 13 miles away, at one time used a different variation to signify each year. Many of the marks include the initial letters of the District, but there is no consistancy of format. Thus, CB may be County of Berwick, or City of Bristol, while BC was for Bath City. To add to the confusion, a third letter was sometimes added to indicate a sub-division of the district; e.g. C_EC was County of Cornwall, E div^n. and L_CD was the Linton division of Cambridge County.

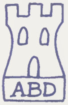
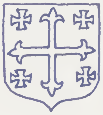
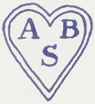
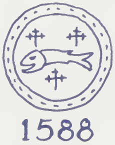
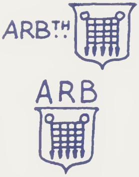
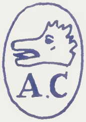
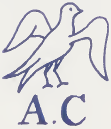
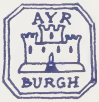
BRITISH VERIFICATION MARKS

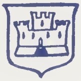
ASSAY OFFICE MARKS The following marks were used by Assay Offices in the verification of coin weights. The fleur-de-lys is said to have been used on Scottish weights, reflecting the close association of Scotland and France.

 Goldsmiths Hall London	 Birmingham from 1773	 Probably Newcastle upon-Tyne	 Glasgow from 1811	 Probably Bristol	 Edinburgh

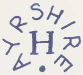
DISTRICT MARKS The following marks were used in the verification of weights used for trade purposes, before the introduction of the uniform system called for by the Act of 1878.

L ch. = Letter changes with the division.
Bo = Borough Co = County

 Aberdeen City	 Abingdon Bo	 Airdrie Bo	 Aldeburgh Bo
 Arbroath Burgh	 Argyll Co	 Arundel Bo	 Ayr Burgh

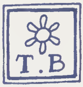


Ayr Burgh

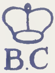


Ayr Co

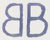
H division ?



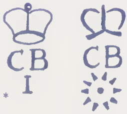
Basingstoke Bo



Bath City

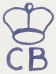


Bedford Bo

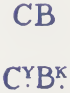


Bedford Co

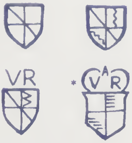
*I division ?



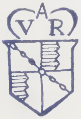
Bedford Co



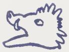
Berwick on
Tweed Co.



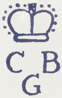
Birmingham
City
*A division ?



Birmingham
City
A division ?

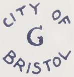


Bradford Bo



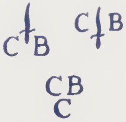
Bristol Bo

G division ?

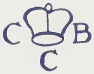


Bristol Bo

G division ?

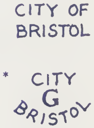


Bristol Bo



Bristol Bo

C division ?

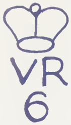


Bristol Bo

*G division ?

BRITISH VERIFICATION MARKS

DISTRICT NUMBERS



The uniform style of mark was introduced in 1878 and comprised a crown, the Royal cypher and a district number. These numbers were listed in the Inspector's Vade Mecum of 1910, and are shown below. Since 1910 unallocated numbers have been used, obsolete numbers re-allocated, and further numbers added. Marks used before 1878 are described in column three, or are shown in the illustrations. Ill. = old mark illustrated.

Bo. = Borough. Co. = County. obs. = obsolete before 1910.

una. = unallocated. L.ch. = Letter changes with the division.

NUMBER	DISTRICT	NOTES & MARKS
1	Board of Trade	Used on Inspector's equipment
2	London City	Ill.
3	Edinburgh City	Ill.
4	London Co	
5	Manchester City	Originally a Bedford Co No.
6	Birmingham City	Ill.
7	Nottingham City	Cross & three crowns
8	Bedford Co	Ill.
9 E* W*	Cornwall Co	*L.ch Ill.
10-13	Bedford Co	obs.
14	Bradford City	Ill.
15	Banff Co	
16	Renfrew Bo	
17	Renfrew Co	
18-19	Derby Co	Ill.
20	Margate Bo	
21	London Co	
22	Forfar Co	
23	Coatbridge Bo	
24-25	Lanark Co	Ill.
26	Lanark Co	obs.
27	Maidstone Bo	
28	London Co	
29	Middlesex Co	Shield with three scimitars
30	London Co	
31	Middlesex Co	
32-33	Stafford Co	Staffordshire 'knot'
34-36	Glasgow City	Ill.
37	Sheffield City	Ill.
38	Bath City	Ill.
39	Bedford Bo	Ill.
40	Beverly Bo	
41	Hull City	Three crowns over HULL
42	Canterbury City	
43-44	Cumberland Co	
45-48	Cumberland Co	obs.
49-50	Westmorland Co	
51	Huddersfield Bo	A ram's head with a sprig of cotton tree in mouth, & BH.
52-53	Lanark Co	Possibly double headed eagle.
54-57	Chester Co	

NUMBER	DISTRICT	NOTES & MARKS
58-62	Glasgow City	
63		una.
64	Sunderland Bo	Ill.
65	Wolverhampton Bo	
66-67	London Co	
68	Devonport Bo	
69	Perth Co	
70	Wigan Bo	
71	Newcastle upon Tyne City	Three towers since 14th century
72	Paisley Bo	
73	Perth City	
74	Poole Bo	
75	Saffron Walden Bo	obs. Ill.
76	Salford Bo	Ill.
77	Sandwich Bo	obs.
78	Ramsgate Bo	obs.
79	Salisbury City	
80	Scarborough Bo	
81	South Molton	obs.
82	Stafford Bo	Probably Staffordshire 'Knot'
83	Stalybridge Bo	
84		una.
85	King's Lynn Bo	
86	Birkenhead Bo	
87	Exeter City	obs. Ill.
88-102	Lancaster Co	Ill.
103	Lancaster Co	obs.
104-109	Lancaster Co	
110	Leicester Bo	Ill.
111	Montrose Burgh	
112	Norwich City	Ill.
113	Oxford Co	allocated in 1881
114-116	Buckingham Co	obs.
117	Buckingham Co	Ill.
118-119	Buckingham Co	obs.
120	Oxford City	Head of an ox (in 1465)
121	Chester City	Ill.
122	Dumfries Co	
123	Brechin Bo	
124	Weymouth Bo	
125	Isle of Ely	Ill.
126-127	Isle of Ely	obs.
128	Wisbech Bo	obs.
129-130	Lincoln Co	Ill.
131-143	Lincoln Co	obs.
144	Grantham Bo	Ill.
145	Derby Bo	
146	Aberdeen City	Ill.
147	Liverpool City	
148	Darlington Bo	
149	Plymouth Bo	Ill.
150-152	Yorkshire North Riding	Ill.
153		una.
154-155	Durham Co	Ill.
156	Northampton Bo	
157	Durham City	

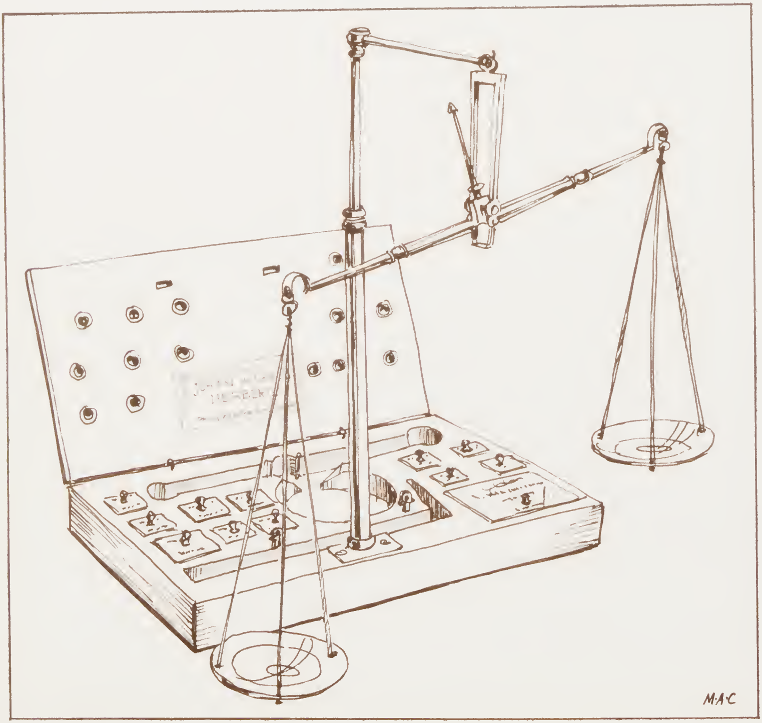
ISASC

EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

M.A. CRAWFORTH, EDITOR

AUTUMN, 1978

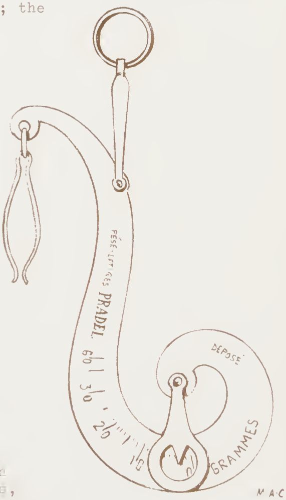


EDITOR'S COMMENT

The Editor and his family recently had an extensive holiday tour of Germany and The Netherlands, visiting ISASC members. As our knowledge of Continental scales is limited, we thoroughly enjoyed our 'crash - course'. We were particularly impressed by the wide span of Utz Schmidt's collection; the library and Nuremberg scales of Paul Riedinger; the accuracy of the scales at P.T.B Braunschweig, where the German National Standards are kept; the attractive display of Horst Winskowsky's scale collection; the erudition of Otto Spiegler; the fine Bergish coin scales of Carl Monnig; the varied collection at the Bizerba Scale Museum; the technical innovations in chemical balances of Hans Jenemann's; the early German coin scales of Tyall Kromer; the unusual Roman steelyards at Trier Museum; the interesting information about Johannes Kirch in Köln Stadtmuseum; and the wide variety in Gunz Thürkôw's collection.

Now, if any reader requires information about German or Dutch scales, I will know to whom I should refer you!

We also had time to enjoy some of the many tourist attractions, believe it or not! None of this fabulous tour would have been possible without the incredible generosity and hard work of Utz Schmidt, our host.



RIGHT - A French postal balance from the collection of Paul Riedinger, shown full-size. It is made from thin sheet brass, and has a spring-steel letter clip and suspension ring. As the instrument tilts with the weight of the letter, the pendulous sight-hole pointer remains vertical, and indicates the weight on the graduations.

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GERMAN GRAIN SCALES

BY U.SCHMIDT

Weighing grain today is a complicated business, but it was not always so. A long time ago, it was realised that buying grain by volume, like wine or milk, was inadequate. The usefulness of grain varied with the size of the seeds, their moisture content, the amount of dirt included, and the damage done by worms which hollowed-out the husks. Thus it was found necessary to weigh the grain, in addition to measuring its volume. Rather than weighing all the grain, samples were taken from each sack, and tested for quality.

Using ordinary measures and scales, many imperfections were present. Inconsistancies in the capacity of the measures, and the different weights used in each town and country, made comparison difficult. Also, the density of grain put into the measure varied from user to user, according to his method of doing it.

Recognising these difficulties, the instrument-maker Gniser, Inspector for Berlin, introduced improvements for weighing grain, in 1781*. He fixed standards for the whole of Germany, using the volume measure 1/8 Metze of Berlin (1/128 Scheffel), and the weight of 1 Krampfund, also of Berlin. In order to have the same density of grain in the measure, he used a funnel with a váriable diameter nozzle, which was adjusted to suit the type of grain being tested. He also specified the distance between the funnel and the measure, and the time taken to fill it.

Gniser noted that imperfections still arose because the weights were subjected to damage and wear, when they were dropped into the scale bucket, or when they were carried about by the grain merchants. But it was well over a century before further improvements were made, in 1912, when a 20 litre grain tester was admitted for verification in Berlin. This apparatus replaced the weight bucket with a hanger and slotted weights, and an improved method of filling was provided.

However, the 20 litre capacity proved to be too large for convenience, and after a few years, a $\frac{1}{4}$ litre capacity was adopted. The cost of sending $\frac{1}{4}$ L samples by post, was much cheaper for the merchants, but it was much less accurate, so a 1 litre capacity also developed.

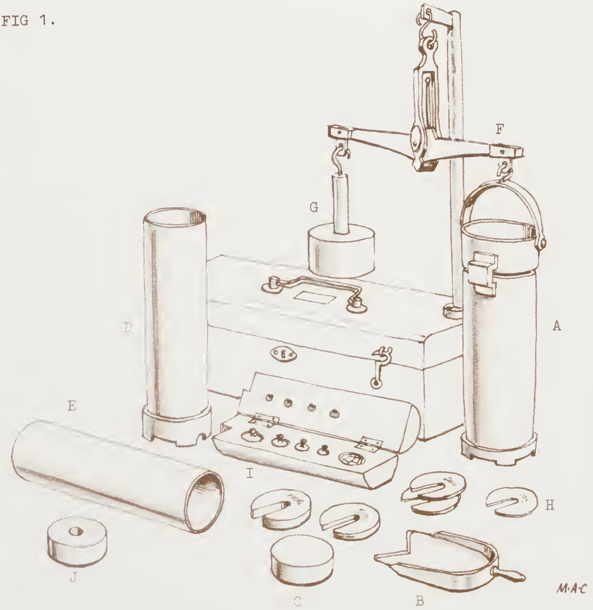
This system was used for some years, and then in 1937/38, the dimensions of each part of the tester, and especially of the capacity measure, were fixed. These specifications are still legal, and in use today.

Now, a short description of the weighing procedure, mainly derived from the instructions given in the book of conversion tables 'Amtliche Tafeln fur Getreideprobier mit Vorlaufkorper Bauarten bis 1937'. These tables show the weight of a Hectolitre (100 L) of grain against the measured weight of the sample.

The corn to be tested must be at room temperature, and air dried. During measurement the humidity must be between 50 and 75%. The grain

* Neues Berliner Intelligenz-Blatt 1786 Nr. 199-201.

FIG 1.



tester, Fig 1., is set up on a strong horizontal table or bench, then the striking knife is inserted into the slot in the bucket. The suction cylinder is placed on top of the knife, and the filling pipe fixed to the top of the bucket.

The bulk density of the grain depends upon the quantity used, and how the filling pipe is filled. For this reason, the discharge cylinder must be filled only to the prescribed mark, and the use of a funnel is not permitted. The discharge cylinder is filled from the sack of grain, and then held 3 to 4 cm from the filling pipe. Grain is poured into the pipe steadily and to the middle, so that the grain will not touch the walls. The pouring time for a 1 L tester is about 12 seconds, and for a $\frac{1}{4}$ L tester, about 8 seconds. (The discharge cylinder should be filled in the same time). ⮚

Then the striking knife is pulled out quickly, without moving the bucket. The suction cylinder falls rapidly and creates a vacuum which causes the grain to follow and settle consistantly, each time the tester is used. Holes are provided in the bottom of the bucket to release the air trapped below the cylinder.

At this stage, the striking knife is put back into the slot, the excess grain is tipped out, and then the knife and filler pipe are removed. Now, the bucket is suspended from the scale and weighed to an accuracy of 0.5 gram.

Opposite the measured weight, in the conversion tables, the corresponding weight for a Hectolitre is found. Each type of grain has its optimum weight. If it is lighter or heavier than the optimum, the utilization factor is poorer and the price is correspondingly lower.

****

KEY TO FIG 1.
A - measuring bucket.
B - striking knife
C - suction cylinder
D - filling pipe
E - discharge cylinder
F - scale beam
G - weighted hanger
H - slotted weights
I - small weights in wood box.
J - spacer (for storage)

Utz Schmidt has collected scales for a short time, but already covers a broad spectrum with his collection. He has been instrumental in forming a strong section of ISASC in Germany.

THE SCALE IN QUESTION

BY M.A.CRAWFORTH

What circumstances led to sets of scales and weights in the German style, being made in London and bearing a label in English ?

The scales were made by John William Herberts, at No 5. in Stidwell Street, near the French Change, St. Ann's, Soho. (an area of London). They had a rectangular, cut-from-solid box, stained black, and decorated brass hooks of distinctive shape. The weights were rectangular, knobbed, and were marked GUINEA, 36 SHIL., 27 SHIL. etc, and grain weights were contained in brass or wooden lidded lockers. Fig 2.

How was it that Herberts' sets, with their attractive foreign style, were so unlike the English tradition ? To find some clues, it is necessary to look at further examples of his work. He made sets of various sizes, from 85 x 40 x 22mm, with only three weights, to larger sets 125 x 62 x 22mm containing ten weights, and still larger boxes 165 x 80 x 25mm with coin weights and pennyweights totalling fourteen weights. In some sets, the weights for 4 SHIL 6P and 5 SHIL 3P, had no knobs, and were stored below the 9 SHIL and 10 SHIL 6P, respectively. Other sets included a telescopic brass column on which to suspend the scales (see front cover). Early sets had labels marked Johan Wilhelm Herbertz, with the beginning of a German text, which had been cut off, Fig 2 and see also, page 29 Fig 3.

So, it appears from the early labels, that Herbertz was of German origin, and that when he first came to London, he used cut-down labels from his home town. Later, when his business was firmly established, he had new labels printed in English, using the Anglicised form of his name.

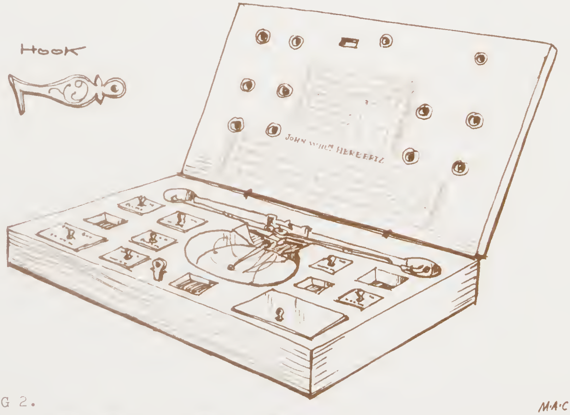


FIG 2.

Where did Herbertz come from ? The style of his sets is characteristic of the Mark and Berg States, and two other scalemakers of the same name are known from that part of Germany. They were Johann Abraham Herbertz, and Johann Phillip Herbertz, both from Solingen in the Dukedom of Berg. It seems probable that Johan Wilhelm was related to these men, and that it was in Berg that he learnt the skills of scalemaking.

When was Herbertz in London ? The weights were for the Guinea, Johannis and Moidore and their subdivisions, all current in England in the 18th century, but no trace of his name has been found in trade directories of that time. However, rent books show that a man called William Herberts lived in Steedwell street in 1773 and 1775, and that he was still there in 1779, after the name of the street had been changed, in 1776, to New Compton Street. As Herbertz' labels state "...so Truly esteemed & approved of by ye Nobility & Gentry this Ten Years past", it can be deduced that he must have arrived in London at least as early as 1766. However, his labels also quoted the New Standard for coin weights, proclaimed in 1773, so it seems unlikely that he arrived much before 1763. ▷

The solution to this problem is dependent upon further evidence being forthcoming. Until such time as a complete German label is recorded, we are left with only tentative conclusions.

THE DOTCHIN

BY G.THÜRKÔW

In many museums and private collections you will find the small and sensitive steelyard known as an opium scale, or dotchin, which had its origins in China or other East-Asiatic countries. These small scales occur in various designs, but they are usually composed of a beam of ivory or bone, on which decimal graduations are marked, there being two or, more commonly, three sets of graduations, plus the fulcrums belonging to them. These fulcrums simply consist of a silk thread, which is pulled through a hole bored in the beam, tied on the lower side, and ending in a tassel at the top. In contrast to most steelyards, the fulcrums are in a row, one behind the other, and consequently, it is not apparent which one relates to which set of graduations.

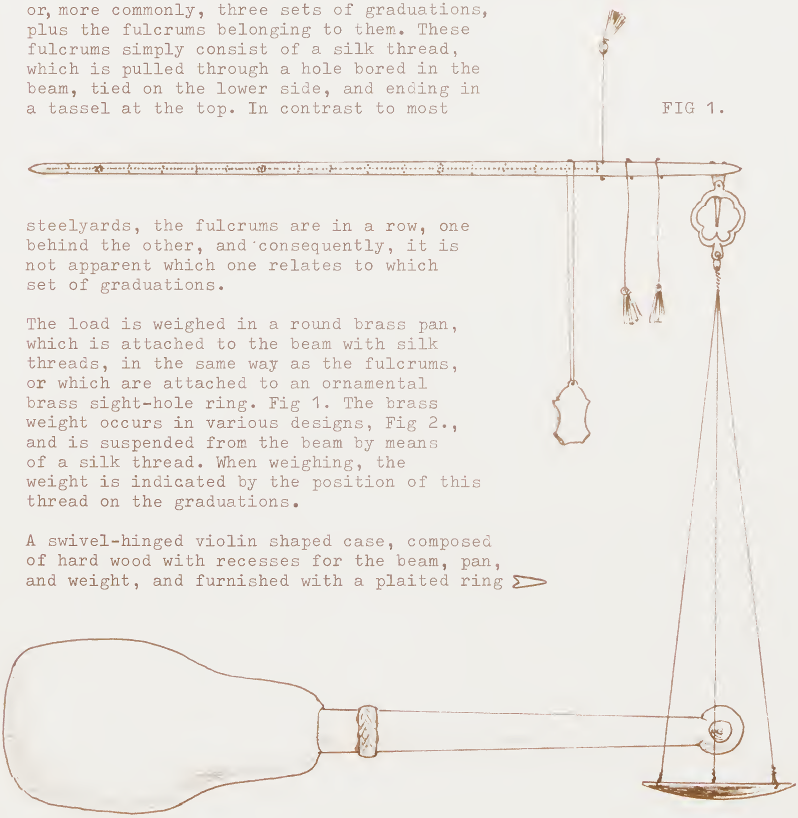


FIG 1.

The load is weighed in a round brass pan, which is attached to the beam with silk threads, in the same way as the fulcrums, or which are attached to an ornamental brass sight-hole ring. Fig 1. The brass weight occurs in various designs, Fig 2., and is suspended from the beam by means of a silk thread. When weighing, the weight is indicated by the position of this thread on the graduations.

A swivel-hinged violin shaped case, composed of hard wood with recesses for the beam, pan, and weight, and furnished with a plaited ring ➢

completes the dotchin. It goes without saying that, besides this general type described here, a great many variations occur, such as the 'mother and baby' dotchin in a fish - shaped case, Fig 3, and the Japanese version with a metal beam and cylindrical weight, Fig 4.

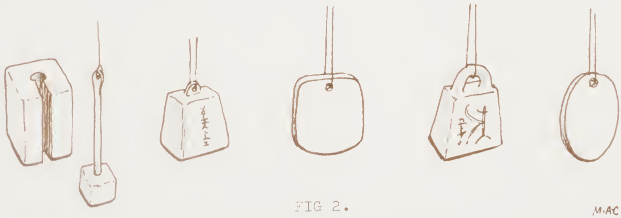


FIG 2.

The dotchin was used for weighing noble metals, jewels, medicines, and of course, for opium. The 'Munt-, Maat-, en Gewichtboek' (Leyden 1859) states:

> "As China maketh do with its gold and silver bars, instead of real gold and silver coins, in the big trade, and in the small trade with its small money, the li or kesj, and consequently can do without all foreign coins, it is remarkable and surprising that it, nevertheless, alloweth the aforesaid Spanish piastre or dollar a very lively circulation, not only in Canton, but all over the Chinese realm, and as the Chinese never take these silver piastres upon trust, but generally after having judged its weight and fineness, even though these piastres have been marked with a stamp more than once, which caused them to wear thin and unsightly, for that end, small coin scales (dotsjin), which closely resemble the English steelyard, are carried about here. Partly to give the exact money, and partly because they are so cumbersome, the dollars, with an extraordinary skilfulness, are cut into pieces that usually form the required part of the dollar (1/8, 1/4 etc), yet these parts are weighed over and over again when used for paying "

From this, and from all other information, it is obvious that the dotchin should not be looked upon as a specific "opium scale", but as a coin scale. On the origin of the steelyard in Eastern Asia, we have little information, but it is generally assumed that the Roman steelyards were taken to Eastern Asia via the trade routes between the Byzantine Empire and China - the legendary silk routes. The use of the dotchin was recorded after the contact of the first European seafarers with China. In his 'Voyage of Discovery' (London 1598-1600), Hakluyt wrote:

> "Everyone that goeth to buy in the market, carrieth a weight and balance & broken silver, and the balance is a little beame of Ivory with a weight hanging at one end with a string & on the other end a little scale* and the string of the weight runneth along by the beame which hath his markes from one Conderin to ten, or of one Maes unto ten".

⊳

*pan

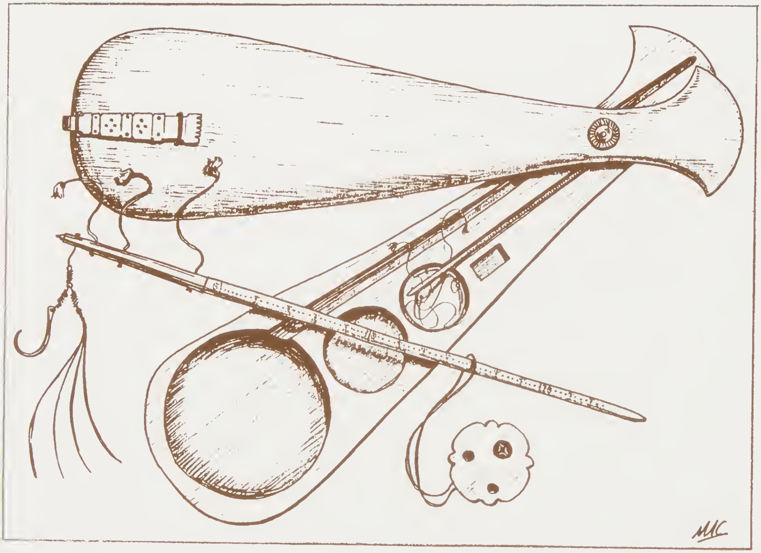


FIG 3

Conderin and Maes are two of the numerous foreign names for the Fuen and Tsien, respectively. A dotchin of the type illustrated in Fig 1, has been experimentally tested and shows the following scale divisions:

a. Scale belonging to the foremost fulcrum.

   This scale is divided into 'Fuen' (0.3778 gram) with a subdivision into 2 'Li' (2 times 0.03778 gram), from 0 upto 75 fuen, rising by 0.0 0.2 0.4 0.6 o.8 1.0 1.2 and so on.

b. Scale belonging to the middle fulcrum.

   Divided into 'Tsien' (3.778 gram) with subdivision into fuen, from 5 up to 22 tsien, rising by 5.0 5.1 5.2 5.3 5.4 5.5 and so on.

c. Scale belonging to the hindmost fulcrum.

   Divided into'Liang' (37.78 gram) with a subdivision into tsien and 2 fuen, from 2 up to 5.4 liang, rising by 2.00 2.02 2.04 2.06 2.08 2.10 2.12 and so on.

   As is usual with steelyards, the graduations overlap for greater convenience when weighing.

Large wooden versions of the dotchin, sometimes carried in a leather scabbard, were used to weigh goods in markets.

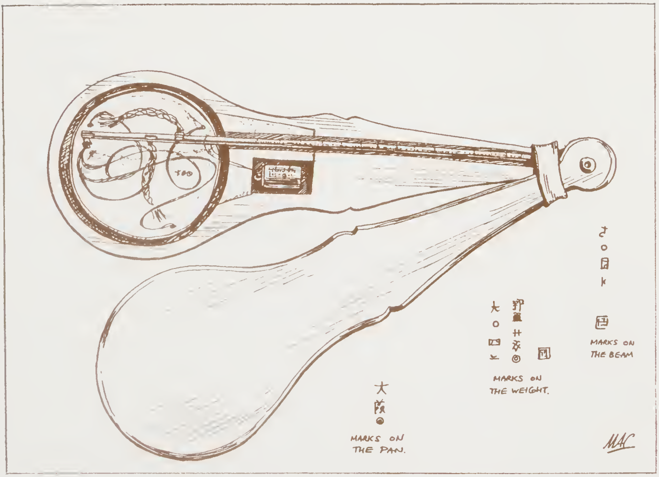

MARKS ON THE BEAM
MARKS ON THE WEIGHT.
MARKS ON THE PAN.
MAC

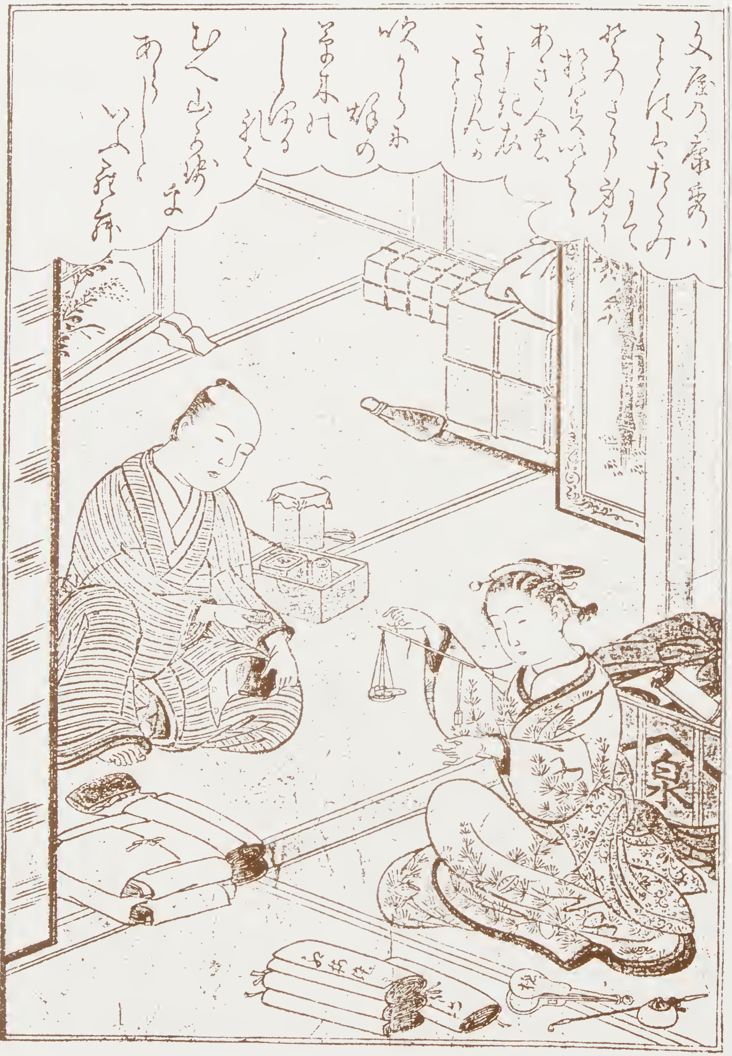
FIG 4

Guus Thurkow has formed a collection which is diverse in principle and variety, ranging from small coin scales to a 2.5M steelyard beam for a weighbridge. He has a substantial library, and is making an important contribution to scales and weights literature by publishing a variety of booklets, with both new material and reprints from old and obscure sources. (For details, see page 65).

Skinner says that Chinese ivory dotchins were reported as early as 1570, and that they were used to weigh Sycee silver - small broken bars of crude native silver, which was almost the only form of currency, apart from foreign coin, in use in China upto about 1920. Ed.

OPPOSITE - Japanese colour print from 'The Hundred Poems by One Hundred Poets' by Shunsho, published in 1775.
The writing is in two parts, a poem by Yasuhide Bunya, and a description of the poet, who "talks in high-flown language, does not know his place, and dresses like a magnificent merchant". He is shown buying cloth cheaply with his 'honeyed tongue'.

My thanks to Dr Shigeo Iwata for his translation and explanation. - Ed.


文屋乃康秀ハ
ことばたくみにて
そのさま身におはず
いはゞあき人のよき
きぬきたらんが
ごとし
吹からに秋の
草木のしをるれ
ばむべ山風を
あらしと
いふらん
泉

NOTES & QUERIES

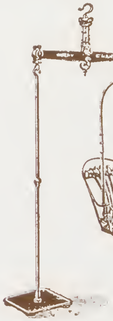
NQ 11. JOCKEY SCALE / PERSON SCALE note from D.W.Ellis.

I would like to comment on the article 'Young Person Scale', by Mr B.Brass, (page 18). It would be quite wrong to refer to it as a jockey scale, as the capacity is too high for that purpose, and it would not have been sufficiently accurate. Whilst it could, and may, have been used for weighing jockeys, that was not its original purpose. Person scales of this type were made, usually of 24 stones capacity, and designed as decorative pieces of furniture suitable for the home, club, hotel etc., and would have been too expensive for race courses. Jockey scales were invariably beam scales, supported within a tripod, with a suspended chair.

I trust that Mr. Brass will not take my remarks as being critical, or offensive, but in the line of weighing equipment it is easy to be misled by first appearances.

****

Mr. Ellis is the curator of the Avery Historical Museum, and many members will know him for his kind and patient help in answering questions about scales and weights.



No. 1048

Jockey Scales

To weigh 20 stone.

NQ 12. INCOMPLETE SCALE (NQ 10) note from U.Schmidt.

The shape of your box, and the capacity of the beam, are typical of scales used in Germany for testing grain. The box is rounded so that it will fit into the cylindrical measure and bucket, for storage. Some boxes contained only the weights, and others also included the beam, like yours.

(See the article on German grain scales, by Utz Schmidt, on page 51.Ed)

NQ 13. WEIGHTS MARKED 'P' AND 'F' query from W.A.E.Gelder.

I have some letter scales stamped S.Mordan & Co, London. The base is of polished walnut, with five lined recesses for the weights. The weights are somewhat peculiar. They are 2,1,$\frac{1}{2}$ and $\frac{1}{4}$ ounces in weight, but are stamped 4P, 2P, 1P, F and F. Surely, P and F can only stand for penny and farthing, but why not D and F? I never heard of the letter P being used to denote a penny, until the introduction of the decimal coinage. If you can throw any light on the mystery, I should be most grateful. ➢

REPLY from the Editor

The weights you have on your scales are typical of the period 1854 to 1871, when it was common to talk about 'Postages'. A postage was a penny-per-half-ounce, and was abbreviated to 'P' on weights. As a 2oz weight was equal to four half-ounces, it was marked 4P, etc.

The letter 'F' on $\frac{1}{4}$oz weights is still a mystery, as I have found no documentary evidence. However, it may have been used for postage to France, during the period 1869 to 1876, when the weight limits were based on metric values approximately equal to $\frac{1}{3}$ and $\frac{2}{3}$oz. Thus a $\frac{1}{4}$oz, and a $\frac{1}{2}$ plus a $\frac{1}{4}$oz, would have been the nearest Imperial equivalent.

It was standard practice in the letter scale making industry, to provide two weights of the smallest denomination, so that an even ounce could be made-up, i.e. $\frac{1}{2}$ and $\frac{1}{4}$ + $\frac{1}{4}$ = 1oz. Hence the provision of two weights marked F, on your scales.

MONEY SCALES FROM THE DUKEDOM OF BERG AND COUNTY OF MARK. 2.

BY C.MÖNNIG

Scales made in Berg and Mark were well-finished and of good quality. The beams were made from hard steel with flat sides, bevelled top edges on the outer quarters and swan-neck beam ends. Fig 8. Pointers were thin and round with a small knob at the tip, and some examples were made of brass and had decorative piercing at the base. The shears were long and slender, with simple feet and pendant. The cords were normally of green silk, but a few were of two colours, black and white etc. The brass pans were decorated with incised concentric circles, but I have seen no maker's marks used.

Square brass weights with knobs were fitted in individual sockets, while recesses were made in the lid to accomodate the knobs, and so the label was pierced with holes. The weights were slightly tapered towards the base and were marked with the name of the coin, and a symbol (a lion, eagle, crown, fleur-de-lis or an orb). One maker, J.W.Forsthoff, made both square and round weights. In very small sets, some of the weight sockets were extra deep to accomodate the $\frac{1}{2}$ and $\frac{1}{4}$ denominations, which were made without knobs, and were stored below the knobbed weights. Above each weight, the name of the coin was written with red ink.

Grain weights were the usual small squares of sheet brass with a circle or 'bird's eye" stamp for each grain. They were stored in a small compartment with a brass or wood lid.

As mentioned in the first part of this article, the sets of scales and weights made in Mark and Berg conformed to a strong stylistic tradition, and the scales of Johann Caspar Mittelstenscheid were no exception, see Part 1 Fig 2, and Fig 8D. ▷

Johann Caspar Mittelstenscheid was born in 1764, the second son of a farmer, Johann Peter, who lived in the Mittelsten Scheid (scheid seems to be a field name meaning, perhaps, watershed). Johann Caspar was apprenticed to his uncle, Johann Petrus Braselmann, a well known maker in Wichlinghausen. He moved to Lennep, the "Mountain Capital of Berg", after his apprenticeship, and founded his own workshop under the name of Johann Caspar Mittelstenscheid.

In 1800, he married Anna Catherina Berghaus, and they had nine children. Their son, Peter Caspar was born in 1803, and he learnt his father's trade. In 1819 he succeeded to the business, at the age of 16, when his father died. Peter Caspar expanded the business into a brass foundry, and eventually moved to Dusseldorf, in 1848, where he lived at No 43 Balker strasse. The original name of the firm was apparently retained as Johann Caspar Mittelstenscheid, because sets of scales bearing his labels are known from the period 1820 to 1830. Peter Caspar Mittelstenscheid died in 1868.

A list of makers and their known dates follows, with marks on weights.

KEY TO FIG 8. A - the usual design. B - J.P.Poppenburg.
C - J.P.Braselmann. D - J.C.Mittelstenscheid.

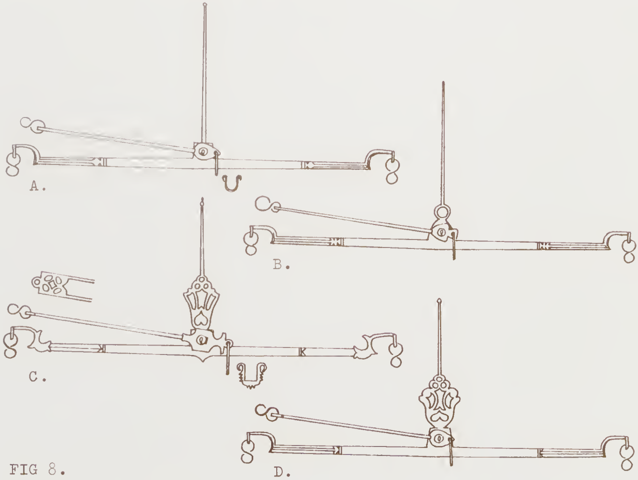


FIG 8.

MONEY SCALE MAKERS IN THE DUKEDOM OF BERG AND COUNTY OF MARK.

Johann Wilhelm Aeckersberg zu Wichlinghausen im Barmen, 1805

Johann Peter Aeckersberg zu Wichlinghausen im Barmen, 1754 - 1806
also auf Wichlinghausen in Ober-Barmen
also in Oberbramen auf Wichlinghausen

Johann Daniel vom Berg in der Bergischen Hauptstadt Lennep, 1778 - 1799

August Braselmann (only one box of brass known, Museum Schwelm, name engraved. c 1830)

Johann Peter Braselmann, also Brasselmann, auf Wichlinghausen in Oberbarmen, 1765 - 1788

Johann Daniel Ellinghaus in Radevormwald (Ducedom Berg) , 1789 - 1802
also im Holtskamp beim Hottenstein Hochgericht Schwelm (County Mark)

Johann Fischer in Düsseldorf, no data (only one set known in the old Cologne style.)

Johann Wilhelm Forsthoff in Sohlingen, 1760 - 1803
also in Solingen

Peter Caspar Hane im Hochgericht Schwelm bey Horath, 1795 (County Mark)

Johann Abraham Herbertz in Solingen, 1754

Johann Phillipp Herbertz in Solingen, 1750 - 1773

Johan Wilhelm Herbertz in Solingen, no data, went to London and changed his name to
John William Herbertz in Stidwell Street, N^{o} 5 near the French Change. S^{t}. Ann's Soho
c 1760 - c 1779

Abraham Kruse zu (also in) Schwelm in der Grafschaft Marck, 178. - 18.., (County Mark)

Johann Melchior Kruse in Elberfeld (also in Gemarke) 1782 - 18..

Johann Caspar Mittelstenscheid in der Bergischen Hauptstadt Lennep, c 1800 - 1819

Peter Caspar Mittelstenscheid, succeded his father's business with his father's name.
1848 he went to Düsseldorf and died there 1868.

Johann Peter Poppenberg aus Westphalen, 1770 - 1786
also bey Sprockhoevel im Amt Blankenstein in der Grafschaft Marck
(County Mark)

Caspar Poppenberg im Amt Blankenstein bey Sprockhoevel, 18..

Diedr. Peter Poppenberg bey Sprockhoevel im Amt Blankenstein in der Grafschaft Marck, 17..

Diedr. Peter und Peter Caspar Poppenberg bey Sprockhoevel ...., 18..

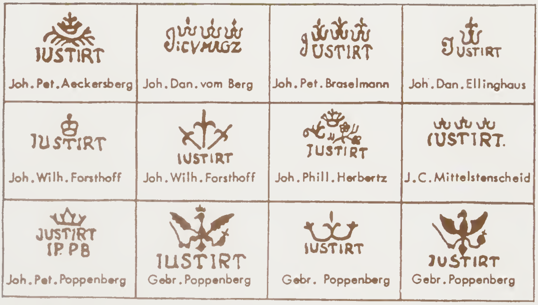
Died.Pet. Casp.Died. Pet.Casp. Poppenberg im Amt Blankenstein bei Sprockhoevel, 18..

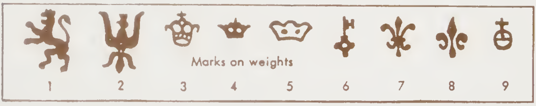
DP CD PC Poppenberg im Amt Blankenstein bey Sprockhoevel 18..

Gebrüder Poppenberg im Amt Blankenstein bei Sprockhoevel, 1817

Johann Caspar Springer, Gemarke (Barmen), 1772, (Written text in the lid in Latin.)

The dates shown, are the first and last, so far discovered. →





1. Joh.Pet.Aeckersberg
   Joh.Dan.vom Berg
   Joh.Pet.Braselmann
   Joh.Wilh.Forsthoff
   Joh.Melch. Kruse
   J.C.Mittelstenscheid

2. Joh.Pet.Aeckersberg
   Joh.Wilh.Forsthoff
   Joh.Phill.Herbertz
   J.C.Mittelstenscheid

3. Joh.Wilh.Forsthoff
   Joh.Phill.Herbertz

4. Joh.Phill.Herbertz

5. Joh.Phill.Herbertz

6. Abraham Kruse

7. Joh.P.Poppenberg

8. Gebr.Poppenberg

9. Joh.Casp.Springer

KEY TO FIG 10.

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Kisch. Bruno, Gewichte und Waagemacher im alten Köln, Köln 1960
Lange. Gisela, Das ländliche Gewerbe in der Grafschaft Mark am Vorabend der Industrialisierung, Köln/Aachen 1976
Mez. Lydia, Basel - Die Sammlung, Basel/Zurich 1974
Numismatica Wien, Cat. VI 1974, X 1975, XIV 1976, XX 1977, Wien.
Unshelm. G. Münz-Waagen und Gewichte, Cat. Hilden 1976
Weidenhaupt. Hugo, Kleine Geschichte der Stadt Düsseldorf, 1964.
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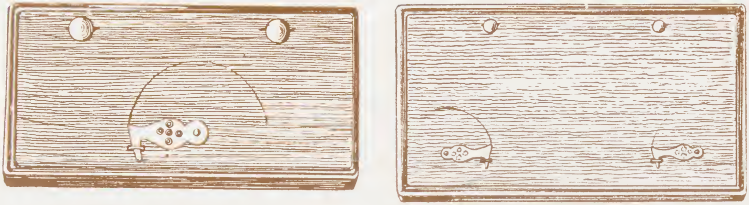
COLLECTIONS

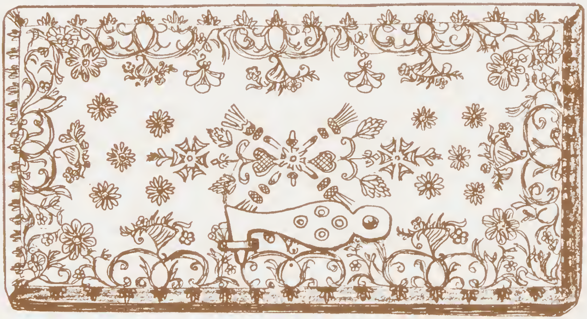
Kölnisches Stadtmuseum in Köln.
Schweizerisches Pharmacie - historisches Museum in Basel.
Städtisches Heimatmuseum in Schwelm.
Private collections CM, VP, PT, GU.

⊳



A. Usual case with 1 hook.

B. Usual case with 2 hooks.



C. Tooled leather case of J.P.Aeckersberg.

FIG 9.

METROLOGISCHE BIBLIOTHEEK - Published by A.G.Thurkow, E.Winterslaan 8,
6026 CA Maarheeze, The Netherlands.

No.I VENEMA.G.A, 'The Repair and Verification of Iron and Brass Weights' 1862. printed in Dutch. 50 pages. price Hfl 13.90

No.II Anon. 'Instructions for the Verification of Dutch Liquid Measures' 1829. printed in Dutch. 42 pages. price Hfl 13.90

No.III WITTE. A.de, 'Les Deneraux et Leurs Ajusteurs aux Pays-Bas Meridionaux. 1899. Illustrations of 106 coin weights. printed in French. 80 pages. price Hfl 16.90

Prices include postage. Send an international money-order to the publisher. current exchange rates: Hfl 1.00 = $ 0.50 = £ 0.25.

In Preparation :-

No.IV Becker's Sons, Catalogue, 1919. 60 illustrations of scales and weights by the World famous Dutch manufacturer, Dutch text. 69p.

No.V CRAWFORTH.M.A, 'A Guide to Weighing Instruments' 1978. Handbook with 93 illustrations of different types of scale, descriptions, classification and dates. English text. approx. 75 pages.

REVIEW

EUROPEAN COIN WEIGHTS FOR ENGLISH COINS

By Gerard Houben.

This booklet outlines the development in the use of coin weights; reviews English, German, French and Dutch weights for coins from the Noble of Henry IV, 1405, to the Sovereign of Queen Victoria's reign; has many illustrations; lists the dates of issue of the coins with their weight and value; has a table of the change in weight of English coins from 1279 to 1625, and lists the dates of British Monarchs.

The author has adopted an unusual approach, listing the weights under the name of the coin, instead of the Monarch. As a non-numismatist, who collects money scales and weights, I found this approach both interesting and useful. The method of presentation makes the book a little difficult to use, and I would have liked numbers for the many illustrations. Some statements seem rather odd, probably due to the translation into English. For example, when the author says that coin weights are used to "control" the weight of the coins, I believe he means 'check' or 'test'. There are also one or two omissions, and some generalisations with which I disagree, but these are minor quibbles.

Dr. Houben is to be congratulated on producing a most useful, and much needed booklet, which is incredibly good value for money. It should be on the bookshelf of every collector of money scales and weights.

European Coin Weights for English Coins, by Gerard Houben. 26 pages, published in English, is available from the Author, price £1.75 or $ 3.50 or DM 6.50 or 7.00 Guilders. plus the postage for 70gram (2½oz). Write to Dr. G.M.M.Houben, Zwolle, Jhr. Strick van Linschotenlaan 5, The Netherlands. Pay by International Post-Giro No 415559, or to bank account 80460826 Barclay's Bank, Hanover Sq. London.

WAAGEN + GEWICHTE

This excellent exhibition of Horst Winskowsky's collection was held in the little Dreiech Museum at Langen, near Frankfurt. The attractive display included an unusual little pocket coin scale patented by Bernstein of Berlin; a rare spring balance by Marriott of London (patented by Augustus Siebe in 1819, No4358); rare German glass weights used during the metal shortage of World war II; gun-powder scales; modern bank coin checkers of the rocker type, and many others. It was a comprehensive collection which, as pointed out by Mr. Winskowsky, showed the fast-disappearing range of weighing devices, now largely replaced by factory weighed and pre-packaged goods.

Horst Winskowsky is a member of ISASC, and has kindly supplied leaflets about his exhibition, for inclusion with Equilibrium.

DATA REQUEST

Members are asked to send me scalemaker's adverts, and contemporary comments, preferably pre 1900.

Editor.

BRITISH VERIFICATION MARKS
PART 3

BY M.A.CRAWFORTH

The performance of a scale beam varies according to the load being weighed. As heavier loads are applied, the beam bends slightly and the sensitivity and stability deteriorate. So, before verification is carried out, it is necessary for the Inspector to know the maximum capacity for which the beam was intended. Board of Trade regulations required this information to be clearly marked on the beam.

The accuracy required from scales, in different trades, varied according to the materials being weighed, or the purpose for which the materials were used. Obviously, weighing vegetables was a less demanding operation than weighing gold, or medicines. Consequently, it was set down by the Board of Trade, in 1907, that all scales were to be divided into three classes. Class 'A' instruments were the most precise types, used by chemists, druggists, jewellers, gold and silver merchants etc. Class 'B' was for less precise scales, and Class 'C' were the least accurate ones, for use in common retail food trades, ironmongery, and so on. Every new equal-arm beam scale, except Class A instruments, had to be marked before verification, either 'Class B' or 'Class C'. Examples of the errors permitted in these classes are shown in the extract from the Board of Trade tables, Fig 1:-

EQUAL-ARM BEAM SCALES	When fully loaded-					
Capacity of Instrument	Sensitivity (grains)			Greatest Error (grains)		
Class	A	B	C	A	B	C
1 oz	0.05	0.33	1.0	0.1	0.33	1.0
1 lb	0.1	1.0	3.0	0.2	1.0	3.0
7 lb	0.5	4.0	12.0	1.0	6.0	18.0
14 lb	-	8.0	24.0	-	12.0	36.0
56 lb	1.5	25.0	75.0	2.0	40.0	120.0
COUNTER MACHINES	(no classes)					
1 lb	20.0			30.0		
7 lb	55.0 (2 dram)			82.0 (3 dr)		
14 lb	82.0 (3 dram)			123.0 (4.5 dr)		
56 lb	164.0 (6 dram)			246.0 (9 dr)		

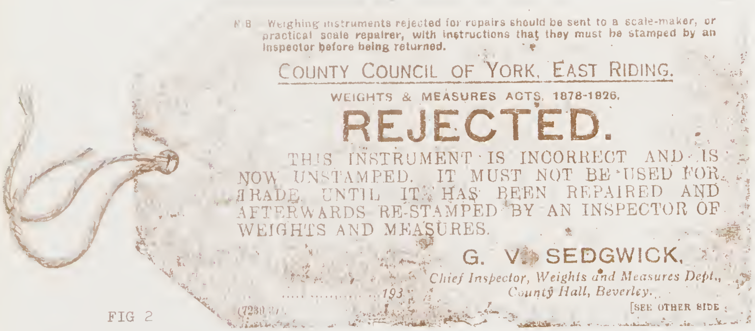
STEELYARDS were permitted to have twice the errors for counter machines for the equivalent capacity.

SPRING BALANCES had to comply with the errors permitted for counter machines, but were not tested for sensitivity.

After proving that the instrument was within the errors permitted, for its capacity and class, a verification mark was either stamped into the metal of the beam, or into a lead plug provided for the purpose. This plug was set into a hole through the beam just above, or just below, the main pivot knife. ▷

Other types of scales, steelyards, Roberval counter scales, spring-balances, and so on, were not divided into classes, but had their own tables of permissable errors, which were considerably greater than even Class C beam scales. Extracts from the tables are shown in Fig 1. They had to be verified and marked in a similar manner to the above, although the lead plug might be in a different position, for example, on the frame of a counter scale, or on the face of a spring-balance.

During the subsequent working life of weighing apparatus, it was subjected to regular examination. If a scale was found, on inspection, to have errors marginally outside the permitted maximum, the inspector was instructed to "leave with the trader a notice calling on him to have the weight, measure, or instrument corrected within a stated period, not to exceed ...28 days". Where the errors were substantially outside the requirements, the existing verification mark was cancelled using a six pointed star stamp, see Fig U page 24. The owner of the instrument was warned that it did not comply with regulations, and that further use was illegal, until repairs had been made, and the instrument re-verified. Notification was also applied to the instrument itself, in the form of a printed label tied in place with a cord. Fig 2.


N B Weighing instruments rejected for repairs should be sent to a scale-maker, or practical scale repairer, with instructions that they must be stamped by an Inspector before being returned.

COUNTY COUNCIL OF YORK, EAST RIDING.

WEIGHTS & MEASURES ACTS, 1878-1926.

REJECTED.

THIS INSTRUMENT IS INCORRECT AND IS NOW UNSTAMPED. IT MUST NOT BE USED FOR TRADE UNTIL IT HAS BEEN REPAIRED AND AFTERWARDS RE-STAMPED BY AN INSPECTOR OF WEIGHTS AND MEASURES.

G. V. SEDGWICK,
Chief Inspector, Weights and Measures Dept.,
County Hall, Beverley.

.................................193

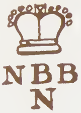
(7230 3/)

[SEE OTHER SIDE

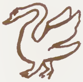
FIG 2

Notes on the marks and district numbers which are continued on the succeeding pages :- As previously stated, some authorities included a letter in their mark, to represent the division responsible for inspection, but it appears that such letters were also used to denote individual inspectors.

Counties are referred to by the chief county town. e.g. Lancaster Co. = Lancashire. Southampton Co. = Hampshire, etc. A Borough (in Scotland, a Burgh) was a town with a seperate Commission of the Peace, and which sent a member to Parliament. A City was a town which was the seat of a Bishop and had a Cathedral Church. Other towns, not having the status of Borough or City, would have been divisions of the County, for the purposes of weights and measures inspection.

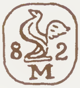


New Buckenham Bo.



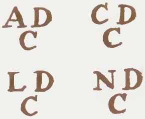
Buckingham Co.

(Royal swan used for 600yrs)

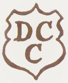


Caithness Co.

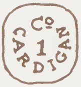
82 = date



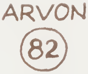
Cambridge Co. (Accrington, Cambridge, Linton and Newmarket districts)



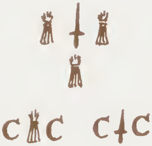
Campbeltown Bo.



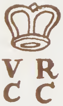
Cardigan Co.



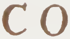
Carnarvon Co.



Chester City

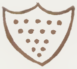


Chichester Bo.

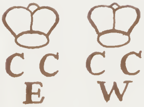


Colchester Bo

(c 1700)

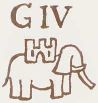


Cornwall Co.

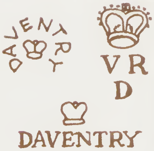


Cornwall Co.

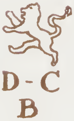
(East & West)



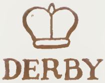
probably Coventry City



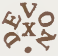
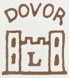
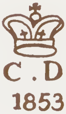
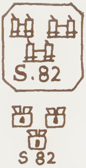
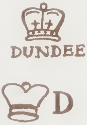
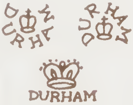
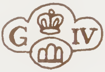
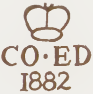
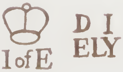
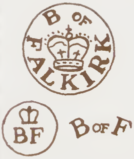
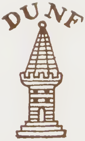
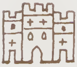
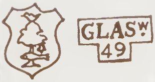
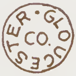
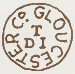
Daventry Bo.



Denbigh Co.



Derby Bo.

 Devon Co.	 Dover Bo.	 Dublin Co.	 Dublin City
 Dundee Burgh	 Durham	 Edinburgh City	 Edinburgh Co.
 Isle of Ely	 Exeter City	 B OF FALKIRK BF B OF F Falkirk Bo.	 Dunfermline Burgh
 Gateshead	 Glasgow City (49 = date)	 GLOUCESTER CO. Gloucester Co. (pre 1830)	 Gloucester Co.

NUMBER	DISTRICT	NOTES & MARKS
158-166	Dorset Co	obs.
167-173	Sussex, West.	11 numbered districts. Ill.
174	Leeds City	
175-188	Essex Co.	obs.
189	Essex Co.	
190	Sutherland Co.	
191	Roxborough Co.	
192	Sudbury Bo.	obs.
193	Calstock	obs.
194	Bodmin Bo.	obs.
195	Bury St. Edmunds Bo.	obs.
196	Buckingham Bo.	obs .
197	Brighton Bo.	
198	Boston Bo.	
199	Bolton Bo.	
200	Blackburn Bo.	
201-202	Ayr Co.	Ill.
203-204		una.
205	Andover Bo.	obs.
206	Aldeburgh Bo.	obs. Ill.
207	Colchester Bo.	Ill.
208	Coventry City	Ill.
209	Fife Co. & Burghs of Anstruther and Dunfermline.	Ill.
210	Devizes Bo.	obs.
211	Worcester Co.	obs.
212	Dunstable Bo.	obs.
213	Greenock Burgh	
214	Hereford Co.	
215-216	Sussex, East	
217	Hove Bo.	
218	Eastbourne Bo.	
219		una.
220	Chopping Wycombe Bo.	
221	Worcester Co.	obs. Ill.
222	Huntingdon Bo.	obs.
223	Ipswich Bo.	
224	Kidderminster Bo.	
225	Kidwelly Bo.	obs.
226	Kilmarnock Burgh	
227	Kinross Co.	
228	Tenby Bo.	obs.
229	Kirkcudbright Co.	
230	Orkney Co.	
231	Kirkwall Burgh	
232	Louth Bo.	
233	Lyme Regis Bo.	obs.
234	Liskeard Bo.	obs.
235	Newark Bo.	
236	Newport (Mon) Bo.	
237	Oxford Bo.	obs.
238	Sanquhar Burgh	obs.
239	London Co.	
240	Elgin Co.	

NUMBER	DISTRICT	NOTES & MARKS
241	Tenterden Bo.	obs.
242	Thetford Bo.	obs.
243	Totnes Bo.	obs.
244	Tynemouth (North Shields) Bo.	
245	Walsall Bo.	
246	Great Yarmouth Bo.	
247	Yeovil Bo.	obs.
248	Linlithgow Co.	
249	Newbury Bo.	
250	Hastings Bo.	
251	Galashiels Bo.	
252	Cardiff City	
253	Sutton Coldfield Bo.	obs.
254	Reading Bo.	
255	Penzance Bo.	
256	Rothesay Burgh	
257	Bute Co.	
258	Inverness Co.	
259	Brecon Co.	
260		una.
261	Bideford Bo	obs.
262	Berwick upon Tweed Bo.	Ill.
263	Callington Bo.	obs.
264	Worcester City	
265	Southampton Bo.	
266	Huntingdon Co.	
267-268	Suffolk, East	
269	Govan Bo.	
270	West Bromwich Bo.	
271	Lossiemouth Burgh	
272	Suffolk, West	Ill.
273	Ossett Bo.	
274-276		una.
277	Warrington Bo.	
278	Bootle Bo.	
279	Barrow-in-Furness Bo.	
280		una.
281	Southport Bo	
and 281	Stranraer Burgh	
282	Pevensey Bo.	obs.
283	Anglesey Co.	
284	Deal Bo.	obs.
285-287	Glamorgan Co.	
288	Glamorgan Co.	obs.
289	Glamorgan Co.	
290	Clitheroe Bo.	
291	Windsor Bo.	
292	Nairn Co. and Bo.	
293	Anstruther Easter Burgh	obs.
294	Irvine Burgh	
295	Oban Burgh	
296	Swansea Bo.	
297	Lincoln City	